XO-D70/D70CD

SERVICE MANUAL

AEP Model
XO-D70

UK Model
XO-D70CD

Photo: XO-D70CD

- XO-D70/D70CD is composed following models. As for the service manual, it is issued for each component model, then, please refer to it.

COMPONENT MODEL NAME FOR XO-D70/70CD

	XO-D70	XO-D70CD
TUNER	ST-D50L	ST-D50L
AMPLIFIER	TA-DS70	TA-DS70
CASSETTE DECK	TC-D70	TC-D70
TURNTABLE SYSTEM	——	PS-LX60P
CD PLAYER	——	CDP-M35

- Items marked " ★ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

ACCESSORY & PACKING MATERIAL

Part No.	Description
1-501-349-11	(AEP, UK, IT)....ANTENNA, LOOP (AM)
1-501-369-11	(AEP, UK, IT)....ANTENNA (FM)
⚠.1-559-014-11	(UK)....CORD, POWER
1-558-543-11	(UK)....CORD, CONNECTION (WITH PLUG)
1-559-552-31	CORD (WITH CONNECTOR) (A)
1-559-997-11	CORD (WITH CONNECTOR)
3-701-806-00	(UK)....ADAPTOR, 45(E)
3-786-199-11	(AEP)....MANUAL, INSTRUCTION
3-786-199-41	(AEP, WG. IT)....MANUAL, INSTRUCTION
3-786-199-51	(UK)....MANUAL, INSTRUCTION
4-918-640-01	(UK)....FASTENER, SIDE PLATE
4-918-644-21	(UK)....PLATE, SIDE
*4-924-517-01	(AEP, WG, IT)....CUSHION
*4-924-532-01	(AEP, WG, IT)....INDIVIDUAL CARTON
*4-924-533-01	(UK)....INDIVIDUAL CARTON
7-685-647-79	(UK)....SCREW +BVTP 3X10 TYPE2 N-S

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

- WG : West Germany model
- IT : Italian model

SPECIFICATIONS

General

Power requirements	XO-D70CD: 240V AC~, 50Hz XO-D70 : 220V AC, 50/60Hz
Power consumption	XO-D70CD: 240W XO-D70 : 110W
AC outlet	XO-D70CD: 1 unswitched, 100W max. XO-D70 : 2 unswitched, total 100W max.
Dimensions	TA-DS70: Approx. 355 × 117 × 330 mm (w/h/d) ($14 \times 4\frac{5}{8} \times 13$ inches) TC-D70: Approx. 355 × 130 × 305 mm (w/h/d) ($14 \times 5\frac{1}{8} \times 12\frac{1}{8}$ inches) ST-D50L: Approx. 355 × 70 × 310 mm (w/h/d) ($14 \times 12\frac{11}{16} \times 12\frac{1}{4}$ inches) PS-LX60P: Approx. 355 × 100 × 340 mm (w/h/d) ($14 \times 4 \times 13\frac{1}{2}$ inches) Incl. projecting parts and controls
Weight	TA-DS70: Approx. 6.4 kg (14 lb 2 oz) TC-D70: Approx. 3.6 kg (7 lb 15 oz) ST-D50L: Approx. 1.9 kg (4 lb 3 oz) PS-LX60P: Approx. 2.4 kg (5 lb 3 oz)

Accessories supplied

RM-L510 remote commander (1)
Sony SUM-3 (NS) batteries (2)
Flat cord with 5-pin and 11-pin connectors (1)
Flat cord with 7-pin and 15-pin connectors (1)
FM wire antenna (except for the West Germany model) (1)
AM loop antenna (1)
XO-D70CD: Adaptor stands (1 set)

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

COMPACT Hi-Fi STEREO SYSTEM

SONY®

MICROFILM
9-953-338-11

Sony Corporation
Audio Group

English
88E0453-1
Printed in Japan
©1988.5
Published by A/V Engineering Service Dept.

CDP-M35

SERVICE MANUAL

Canadian Model
AEP Model
UK Model
E Model
Saudi Arabia Model

713581

CG01

SPECIFICATIONS

Compact disc player

System	Compact disc digital audio system
Laser	Semiconductor laser ($\lambda = 780$nm)
Emission duration	Continuous
Laser output	Max. 0.4 mW This output is the value measured at a distance of about 1.6 mm from the objective lens surface on the Optical Pick-up Block.
Frequency response	2 Hz – 20 kHz (±0.5 dB)
Signal to noise ratio	More than 100 dB
Dynamic range	More than 88 dB
Harmonic distortion	Less than 0.05% (1kHz)
Wow and flutter	Below measurable limit
Outputs	LINE OUT (phono jacks) Output level 2 V (at 50 kilohms) Load impedance over 10 kilohms
Channel separation	More than 95 dB (1kHz)

General

Power requirements	Canadian model: 120 V AC, 60 Hz UK model: 240 V AC, 50 Hz AEP model: 220 V AC, 50 Hz E, Saudi Arabian model: 110 – 120 or 220 – 240 V AC, adjustable, 50/60 Hz
Power consumption	10 W
Dimensions (approx.) (w/h/d)	355 x 80 x 275 mm (14 x $3\frac{1}{4}$ x $10\frac{7}{8}$ inches) including projecting parts and controls
Weight (approx., net)	3.0 kg (6 lbs 10 oz)

Supplied accessories

AC power cord	1
Audio signal connecting cord	1 (2 phono plugs – 2 phono plugs)

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

MICROFILM

MC-Service

COMPACT DISC PLAYER

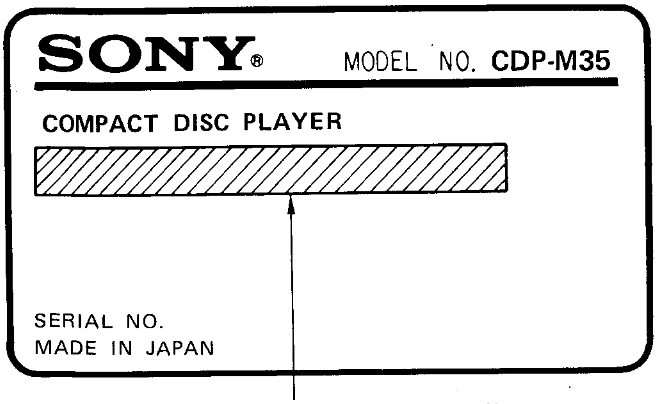
SONY®

AUD

SERVICING NOTES

MODEL IDENTIFICATION

– Specifications Labels –



SONY® MODEL NO. CDP-M35

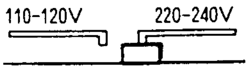
COMPACT DISC PLAYER

SERIAL NO.
MADE IN JAPAN

Canadian model: AC: 120 V ~ 60 Hz 10 W
AEP model: AC: 220 V ~ 50/60 Hz 10 W
UK model: AC: 240 V ~ 50/60 Hz 10 W
E, Saudi Arabian model:
AC: 120, 220, 240 V ~ 50/60 W 10 W

E model

110 - 120, 220 - 240 V AC
(Adjustable using the voltage selector.)



NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.

During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.

The flexible board is easily damaged and should be handled with care.

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

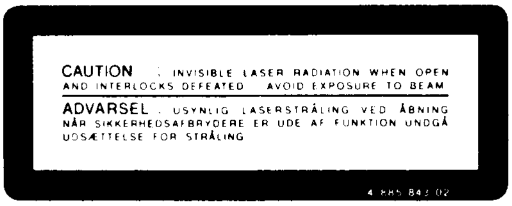
ADVARSEL!!

Under service må øjnene ikke komme nær objektiv-linsen på den optiske pick-up enhed. I tilfælde af at det er nødvendigt at kontrollere udsendelsen af laserlys, skal det ske i en afstand af mere end 25 cm fra den optiske pick-up.

LASER ADVARSEL MÆRKNING

Følgende mærkning findes indvendig i apparatet:

1. Advarsel Mærkning



CAUTION : INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED AVOID EXPOSURE TO BEAM

ADVARSEL . USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSÆTTELSE FOR STRÅLING

4 885 843 02

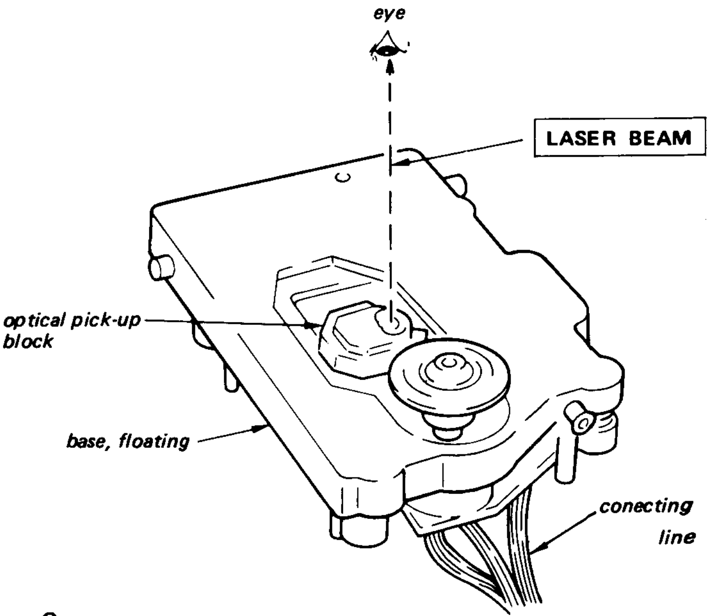
VAROITUS: Laite sisältää, laserdiodin, joka lähettää (näkymätöntä) silmille vaarallista lasersateilyä.

CLASS 1
LASER PRODUCT

This Compact Disc player is classified as a CLASS 1 LASER product.
The CLASS 1 LASER PRODUCT label is located on the rear exterior.

WARNING !!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION, BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 25 cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.



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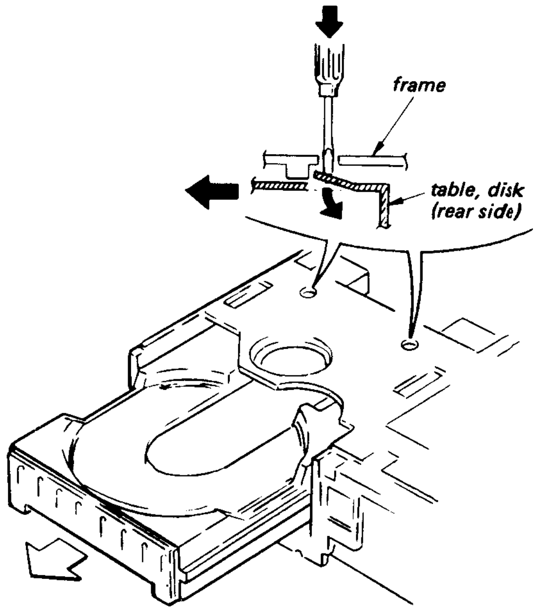
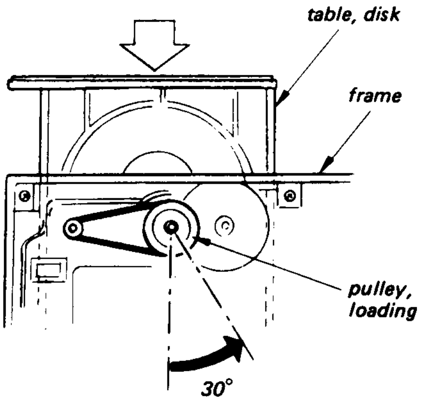
NOTES ON REPAIR

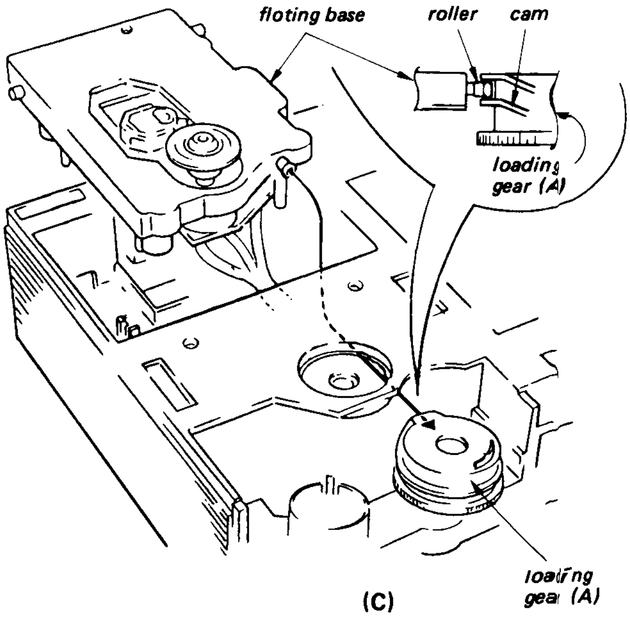
- When removing the disk-table, put the small screwdriver into the hole.
  Pull off the disk-table toward you while pushing the screwdriver. See figure (A).
- When re-assembling the disk-table, rotate the loading pulley by 30-degree in the direction of the arrow by finger, and put the table slowly. See figure (B).
- When re-assembling the floating base, set it so that the floating-base roller is engaged with the cam of the loading gear (A). See figure (C).


frame
table, disk (rear side)

(A)


table, disk
frame
pulley, loading
30°

(B)


floting base
roller
cam
loading gear (A)
loading gear (A)

(C)

MC-Service

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:
Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

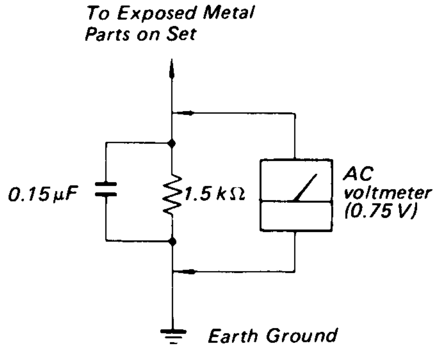
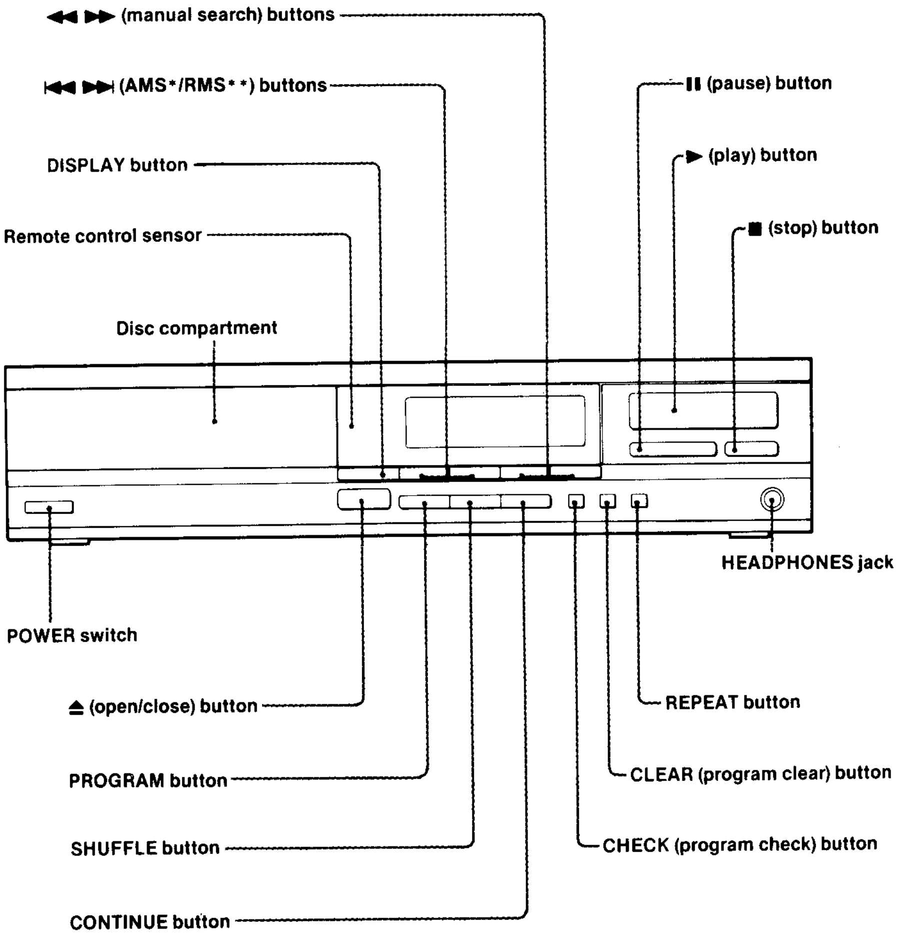

To Exposed Metal Parts on Set
0.15μF
1.5 kΩ
AC voltmeter (0.75 V)
Earth Ground

Fig. A. Using an AC voltmeter to check AC leakage.

LOCATION AND FUNCTION OF CONTROLS


◀◀ ▶▶ (manual search) buttons
|◀◀ ▶▶| (AMS*/RMS**) buttons
DISPLAY button
Remote control sensor
Disc compartment
II (pause) button
▶ (play) button
■ (stop) button
HEADPHONES jack
POWER switch
⏏ (open/close) button
PROGRAM button
SHUFFLE button
CONTINUE button
REPEAT button
CLEAR (program clear) button
CHECK (program check) button

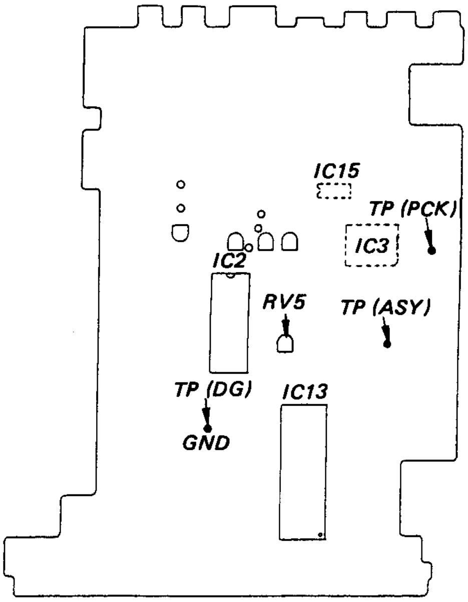
SECTION 1
ELECTRICAL ADJUSTMENTS

1. Perform adjustments in the order given.
2. Use YEDS-18 (Part No. 3-702-101-01) disc unless otherwise indicated.
3. Use the oscilloscope with more than 10 MΩ impedance.

RF PLL Free-run Frequency Check

1. Ground both test points TP (ASY).
2. Press OPEN/CLOSE button and open the disk holder.
3. Check for 4.3218 MHz at test point TP (PCK) using a frequency counter. If not, adjust RV5.

Adjustment Location: main board

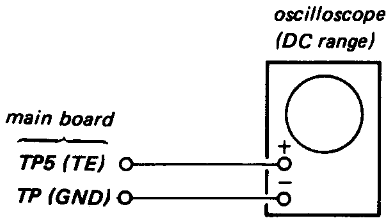

IC15
TP (PCK)
IC3
IC2
RV5
TP (ASY)
TP (DG)
GND
IC13

– Component Side –

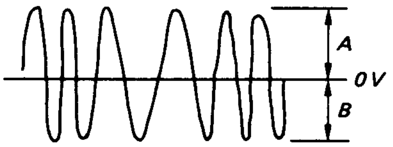
E·F Balance Adjustment

This adjustment should be made when replacing TOP (T-type Optical Pick-up).

Procedure:

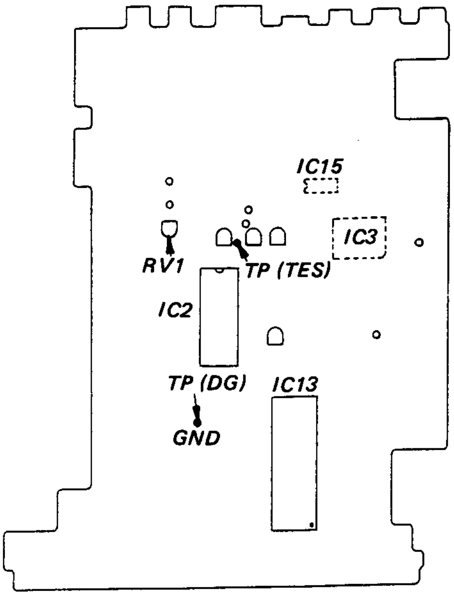

oscilloscope
(DC range)
main board
TP5 (TE)
TP (GND)
+
–

1. Connect oscilloscope to test point TP (TES) and ground.
2. Turn POWER switch on.
3. Put disc (YEDS-18) in and press ▷ button.
4. Press ◀◀ FF or ▶▶ REW botton.
5. Adjust RV1 for a vertically-symmetrical waveform as shown below. (A = B)



VOLT/DIV: 1 V
TIME/DIV: 1 ms

Adjustment Location: main board


IC15
IC3
RV1
TP (TES)
IC2
TP (DG)
GND
IC13

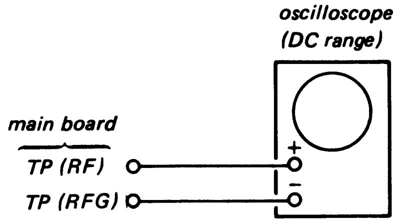
– Component Side –

MC-Service

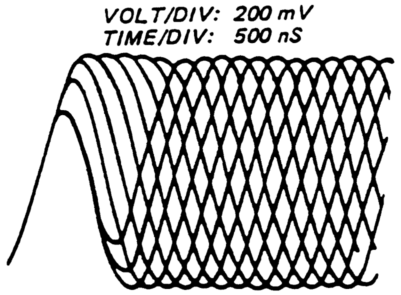
Focus Bias Adjustment

This adjustment should be made when replacing TOP (T-type Optical Pick-up).

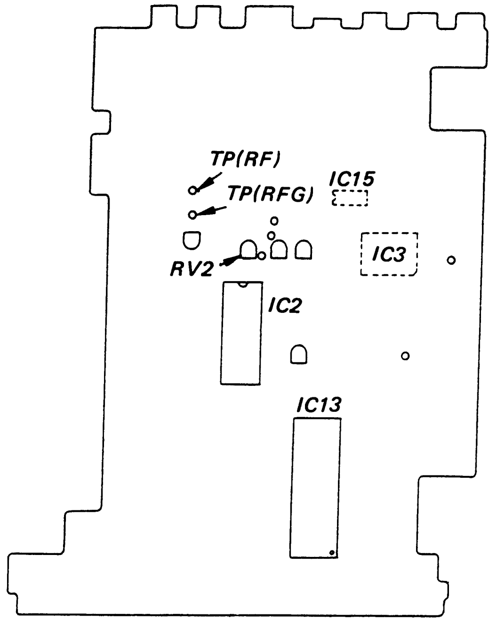
Procedure:



1. Connect oscilloscope to test points TP (RF) and TP (RFG).
2. Turn POWER switch on.
3. Put disc (YEDS-18) in and press button.
4. Adjust RV2 for an optimum waveform eye pattern or so that the peak is maximum. Optimum eye pattern means that shape "<>" can be clearly distinguished at the center of the waveform.



Adjustment Location: main board



— Component Side —

REFERENCE

Focus/Tracking Gain Adjustment

A frequency response analyzer is necessary in order to perform this adjustment exactly.

However, this gain has a margin, so even if it is slightly off, there is no problem. Therefore, do not perform this adjustment.

Focus/tracking gain determines the pick-up follow-up (vertical and horizontal) relative to mechanical noise and mechanical shock when the 2-axis device operate.

However, as these reciprocate, the adjustment is at the point where both are satisfied.

- When gain is raised, the noise when the 2-axis device operates increases.
- When gain is lowered, it is more susceptible to mechanical shock and skipping occurs more easily.
- When gain adjustment is off, the symptoms below appear.

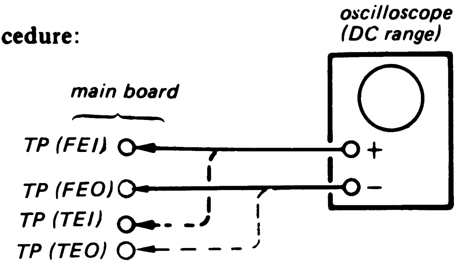
Gain / Symptoms	Focus	Tracking
● The time until music starts becomes longer for STOP →▷PLAY or automatic selection (⏮ ⏭buttons pressed. (Normally takes about 2 seconds.)	low	low or high
● Music does not start and disc continues to rotate for STOP→▷PLAY or automatic selection (⏮ ⏭ buttons pressed.)	–	low
● Disc table opens shortly after STOP→▷PLAY.	low or high	–
● Sound is interrupted during PLAY. Or time counter display stops progressing.	–	low
● More poise during 2-axis device operation.	high	high

The following is a simple adjustment method.

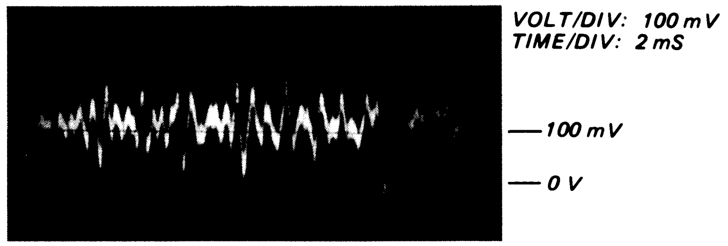
– Simple Adjustment –

Note: Since exact adjustment cannot be performed, remember the positions of the controls before performing the adjustment. If the positions after the simple adjustment are only a little different, return the controls to the original position.

Procedure:

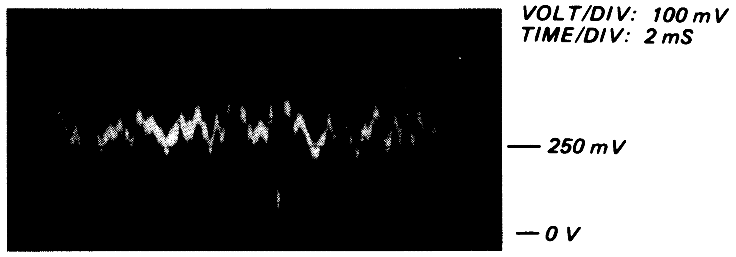


1. Keep the set horizontal.
   (If the set is not horizontal, this adjustment cannot be performed due to the gravity against the 2 axis device.)
2. Insert disc (YEDS-18) and press PLAY button.
3. Connect oscilloscope to main amp board TP (FEI), TP (FEO).
4. Adjustment RV3 to that the waveform is as shown in the figure below. (focus gain adjustment)

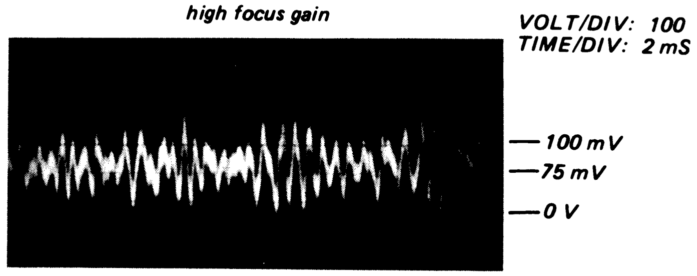


- Incorrent Examples (DC level changes more than on adjusted waveform)

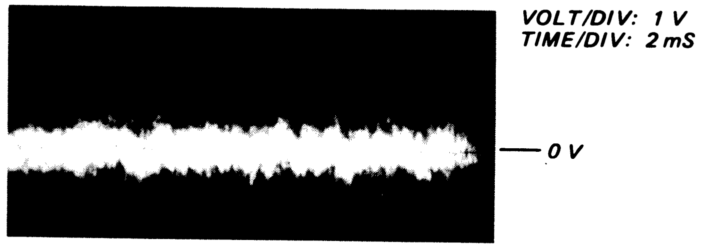
low focus gain



high focus gain

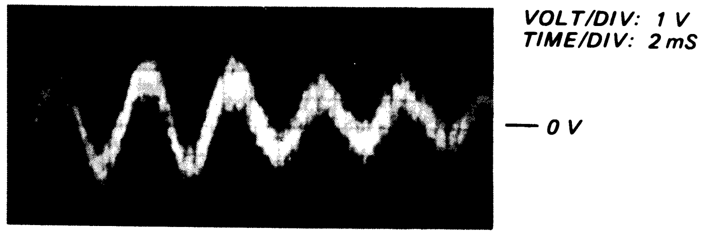


5. Connect oscilloscope to main board TP (TEI), TP (TEO).
6. Adjust RV4 so that the waveform is as shown in the figure below. (tracking gain adjustment)

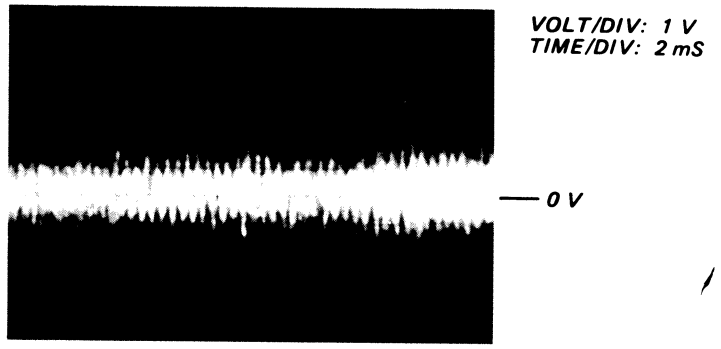


- Incorrect Examples (fundamental wave appears)

low tracking gain

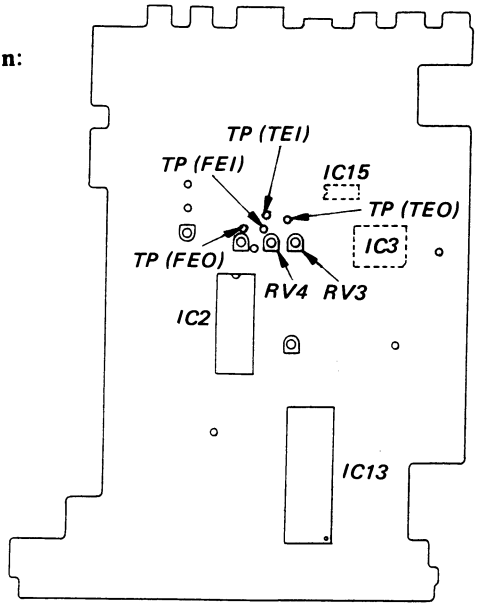


high tracking gain
(higher fundamental wave than for low gain)



Adjustment Location:

main board

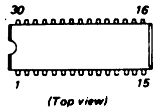


— Component Side —

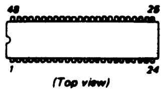
SECTION 2
DIAGRAMS

- **Semiconductor Lead Layouts**

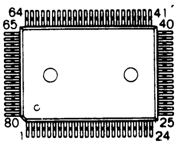
CXA1081S


30
16
1
15
(Top view)

CXA1182S

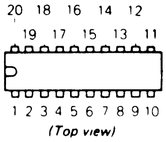

48
25
1
24
(Top view)

CXD1125Q

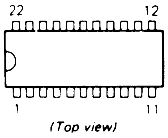

64
65
41
40
80
1
25
24

MARKING SIDE VIEW

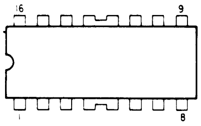
CXD1161P-1


20 18 16 14 12
19 17 15 13 11
1 2 3 4 5 6 7 8 9 10
(Top view)

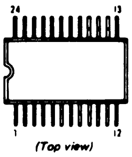
CXD1162P


22
12
1
11
(Top view)

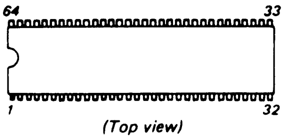
LA6520



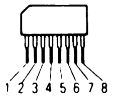
LC9600P-144


24
13
1
12
(Top view)

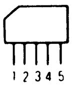
MSC6458-18SS


64
33
1
32
(Top view)

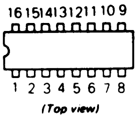
M5218L



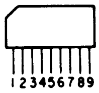
M5231TL



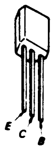
M5290P-16
TA8406P


16 15 14 13 12 11 10 9
1 2 3 4 5 6 7 8
(Top view)

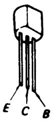
µPC4570HA



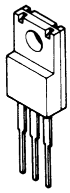
2SA1345
2SC3399
2SC3402



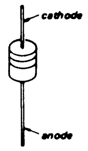
2SB1013
2SC3622



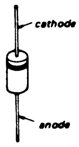
2SB1274SA-Q
2SD1913SA-Q



RD5.1ES-B


cathode
anode

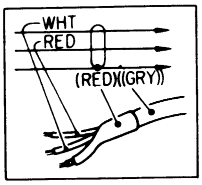
RD6.8ES-B
1SS132
10E2


cathode
anode

Note on Mounting Diagram:

Note:

- Color code or sleeving over the end of the jacket.


WHT
RED
(RED)(GRY)

- o—— : parts extracted from the component side.

Note on Schematic Diagram:

Note:

- All capacitors are in µF unless otherwise noted. pF: µµF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $^1/_4$W or less unless otherwise specified.
- △ : internal component.
- ▬▬ : B+ bus.
- ▬ ▬ ▬ : B– bus.
- ☐ : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark: STOP
  (   ): PLAY
- Voltages are taken with a VOM (50 kΩ/V).
  Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- ―▶― : Signal path.
- Switch

Ref. No.	Switch	Position
SW1	POWER	OFF
SW2	VOLTAGE SELECTOR	220–240 V
SW3	CLEAR	OFF
SW4	OPEN/CLOSE	OFF
SW5	REPEAT	OFF
SW6	PLAY	OFF
SW7	PROGRAM	OFF
SW8	SEARCH REVERSE	OFF
SW9	AMS REVERSE	OFF
SW10	AUTO SAPCE	OFF
SW11	PAUSE	OFF
SW12	SHUFFLE	OFF
SW13	CHECK	OFF
SW14	SEARCH FORWARD	OFF
SW15	AMS FORWARD	OFF
SW16	DISPLAY	OFF
SW17	STOP	OFF
SW18	CONTINUE	OFF
SW401	LIMIT	OFF
SW901	LOADING	OFF

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

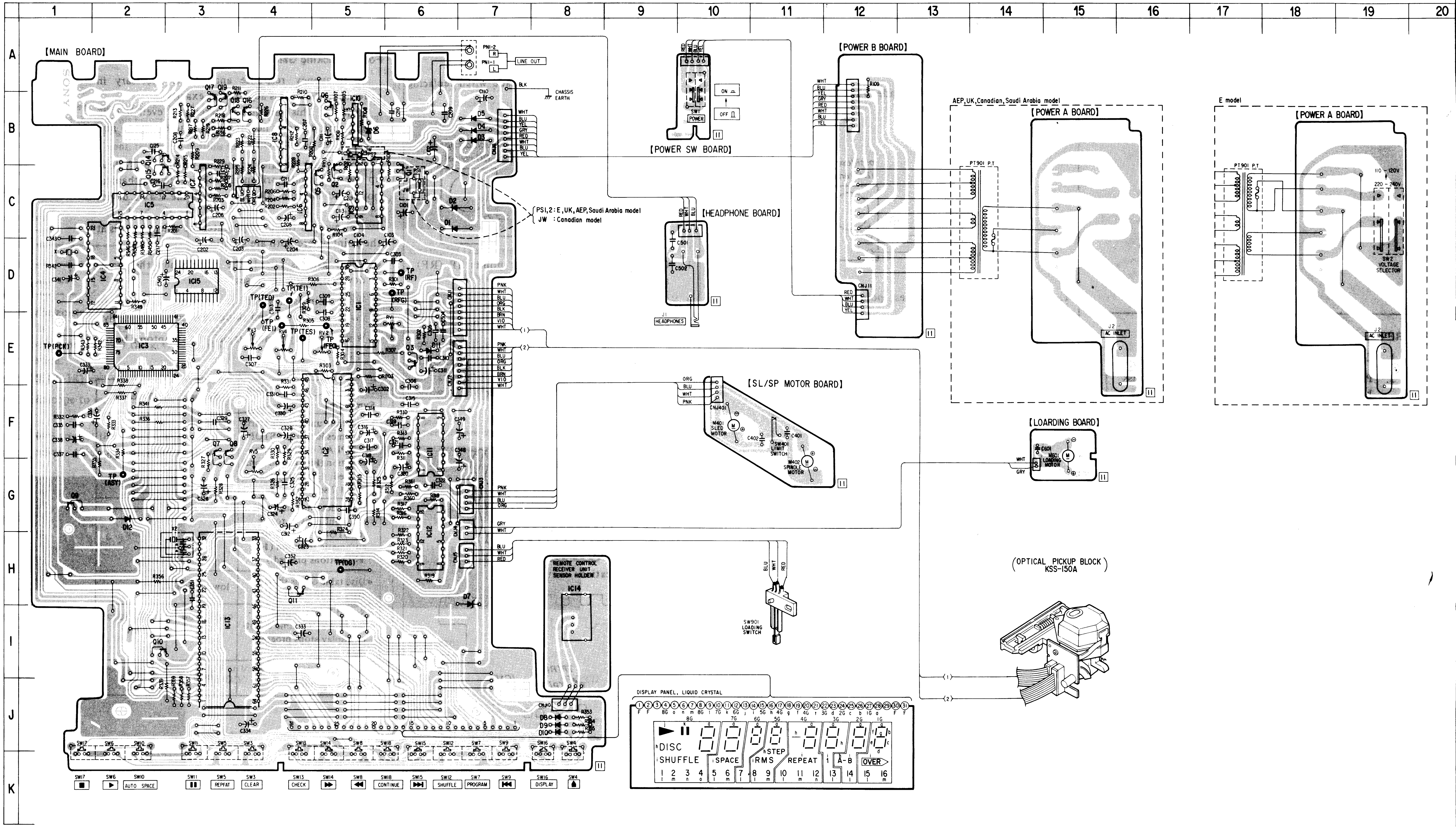
Note: Les composants identifiés par un tramé et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- **SEMICONDUCTOR LOCATION**

Ref. No.	Location
D1	C-6
D2	C-6
D3	B-7
D4	B-7
D5	B-7
D6	B-5
D7	H-7
D8	J-8
D9	J-8
D10	J-8
D11	E-6
D12	G-2
IC1	D-5
IC2	F-5
IC3	E-2
IC4	D-2
IC5	C-2
IC6	C-4
IC7	C-3
IC8	B-4
IC9	C-5
IC10	B-5
IC11	F-6
IC12	H-6
IC13	I-3
IC14	I-8
IC15	D-3
Q1	C-6
Q2	C-5
Q3	E-6
Q5	C-5
Q6	B-5
Q7	F-3
Q8	F-3
Q9	G-1
Q10	I-2
Q11	H-4
Q14	B-2
Q15	C-2
Q16	B-4
Q17	B-3
Q18	B-3
Q19	B-3

MC-Service

2-1. MOUNTING DIAGRAM


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
A
B
C
D
E
F
G
H
I
J
K
[MAIN BOARD]
LINE OUT
PN1-2 R
PN1-1 L
BLK
CHASSIS EARTH
PS1,2 : E, UK, AEP, Saudi Arabia model
JW : Canadian model
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC10
IC11
IC12
IC13
IC14
IC15
TP(RF)
TP(RFG)
TP(TEO)
TP(TE1)
TP(FE1)
TP(TES)
TP(FEO)
TP(RCK)
TP(ASY)
TP(DG)
CN1
CN2
CN3
CN4
CN5
CN6
CN10
WHT
BLU
YEL
GRY
RED
PNK
ORG
BRN
VIO
(1)
(2)
[POWER SW BOARD]
SW1 POWER
ON
OFF
[HEADPHONE BOARD]
C501
C502
J1 HEADPHONES
[POWER B BOARD]
CNJ11
R109
AEP, UK, Canadian, Saudi Arabia model
[POWER A BOARD]
PT901 P.T
J2 AC INLET
E model
[POWER A BOARD]
110 - 120V
220 - 240V
SW2 VOLTAGE SELECTOR
[SL/SP MOTOR BOARD]
CNJ401
M401 SLED MOTOR
C401
C402
SW401 LIMIT SWITCH
M402 SPINDLE MOTOR
[LOARDING BOARD]
C601
M601 LOADING MOTOR
REMOTE CONTROL RECEIVER UNIT SENSOR HOLDER
SW901 LOADING SWITCH
(OPTICAL PICKUP BLOCK KSS-150A)
DISPLAY PANEL, LIQUID CRYSTAL
DISC
SHUFFLE
SPACE
STEP
RMS
REPEAT
A-B
OVER
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
D8
D9
D10
SW17 ■
SW6 ▶
SW10 AUTO SPACE
SW11 ❚❚
SW5 REPEAT
SW3 CLEAR
SW13 CHECK
SW14 ▶▶
SW8 ◀◀
SW18 CONTINUE
SW15 ▶▶❚
SW12 SHUFFLE
SW7 PROGRAM
SW9 ❚◀◀
SW16 DISPLAY
SW4 ⏏

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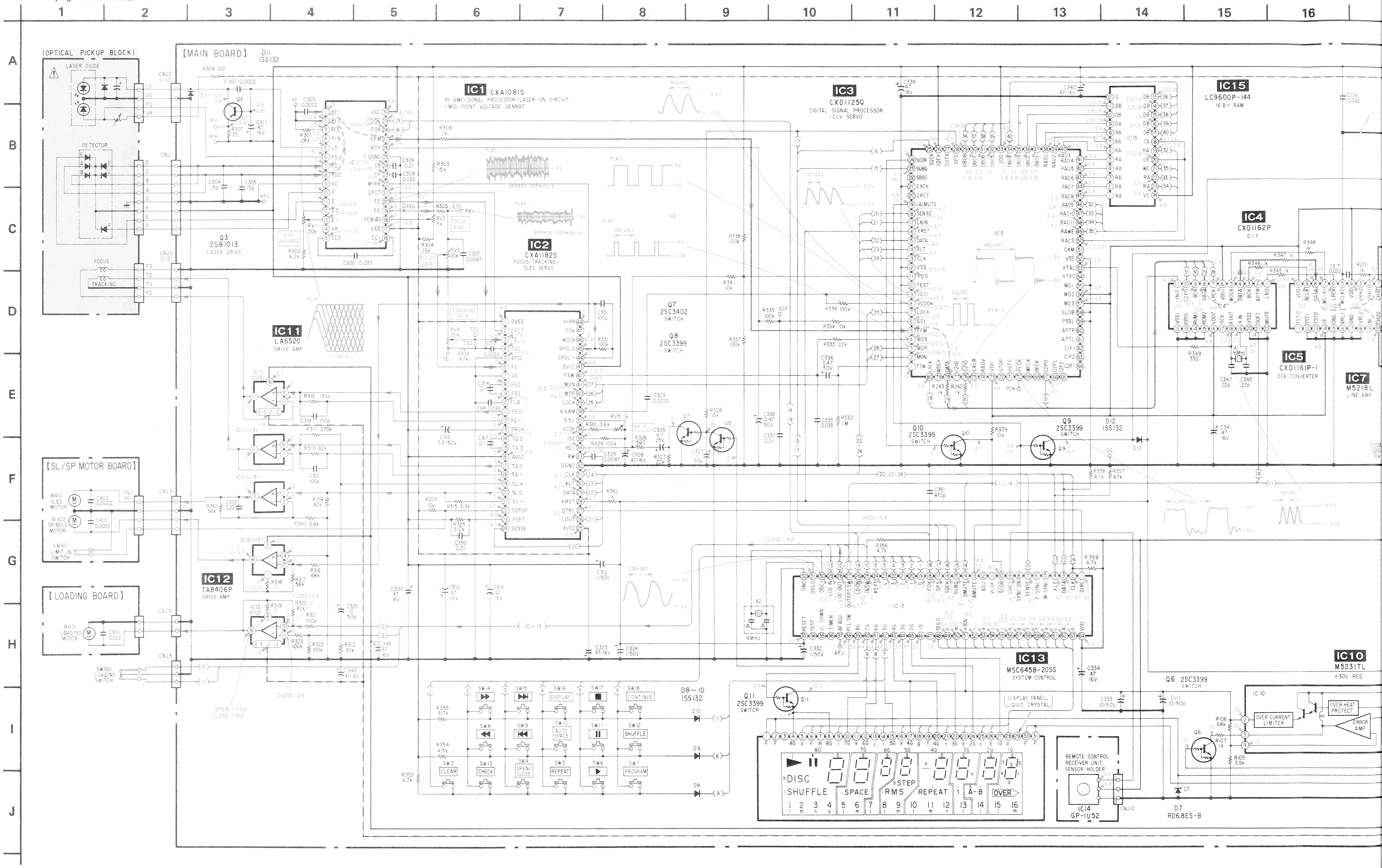
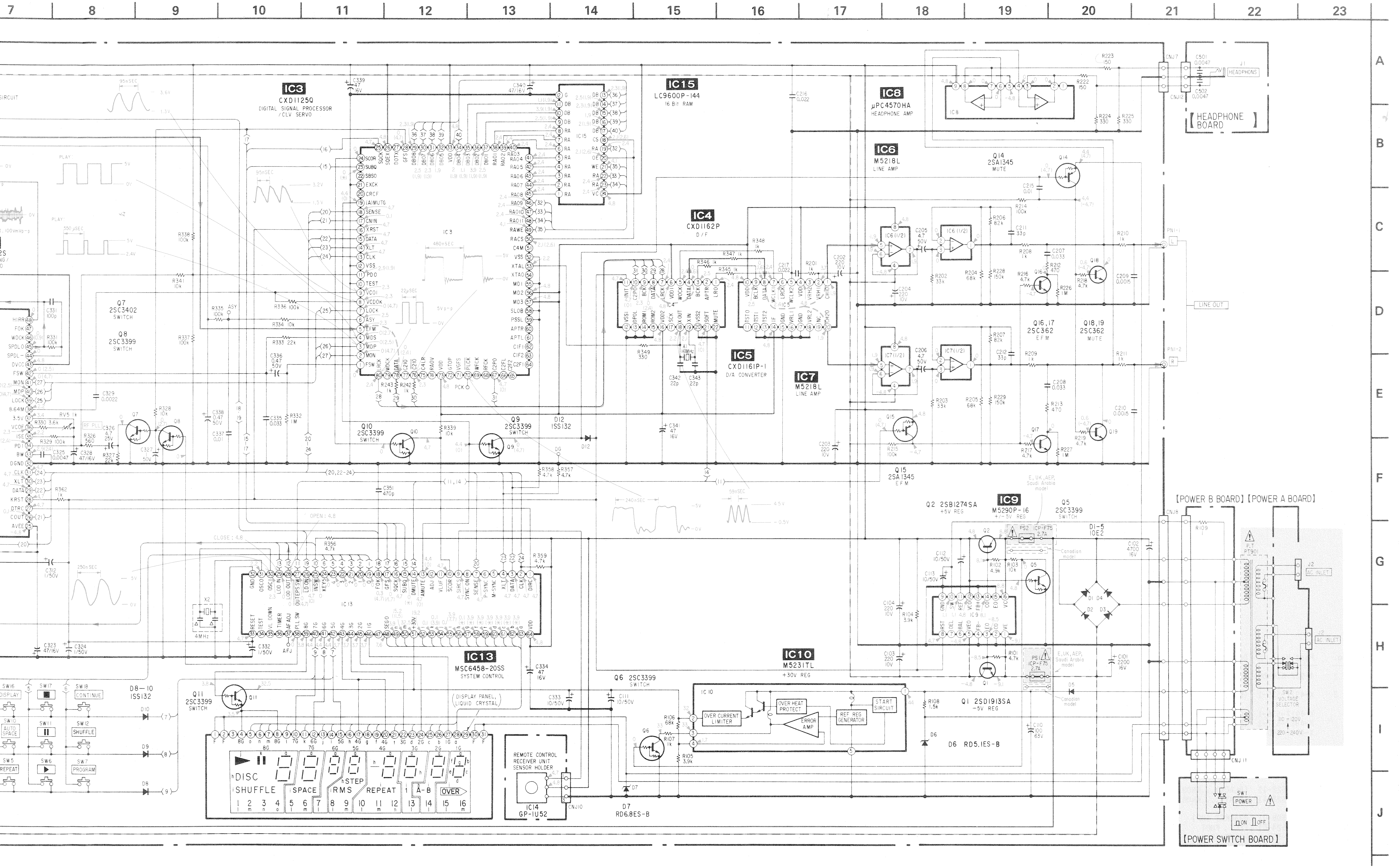
2-2. SCHEMATIC DIAGRAM

- See page 8 for notes.


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
A B C D E F G H I J
(OPTICAL PICKUP BLOCK)
LASER DIODE
DETECTOR
FOCUS
TRACKING
[MAIN BOARD]
[SL/SP MOTOR BOARD]
M401 SLED MOTOR
M402 SPINDLE MOTOR
SW401 LIMIT IN SWITCH
[LOADING BOARD]
M601 LOADING MOTOR
SW901 LOADING SWITCH
IC1 CXA1081S
RF AMP/SIGNAL PROCESSOR/LASER ON SIRCUIT /MID. POINT VOLTAGE GENRAT
IC2 CXA1182S
FOCUS/TRACKING/SLED SERVO
IC3 CXD1125Q
DIGITAL SIGNAL PROCESSOR /CLV SERVO
IC4 CXD1162P
D/F
IC5 CXD1161P-1
D/A CONVERTER
IC7 M5218L
LINE AMP
IC10 M5231TL
+30V REG
IC11 LA6520
DRIVE AMP
IC12 TA8406P
DRIVE AMP
IC13 MSC6458-20SS
SYSTEM CONTROL
IC14 GP-1U52
REMOTE CONTROL RECEIVER UNIT SENSOR HOLDER
IC15 LC9600P-144
16 Bit RAM
Q3 2SB1013
LASER DRIVE
Q7 2SC3402
SWITCH
Q8 2SC3399
SWITCH
Q9 2SC3399
SWITCH
Q10 2SC3399
SWITCH
Q11 2SC3399
SWITCH
Q6 2SC3399
SWITCH
D11 1SS132
D12 1SS132
D8-10 1SS132
D7 RD6.8ES-B
X1 16MHz
X2 4MHz
OVER CURRENT LIMITER
OVER HEAT PROTECT
ERROR AMP
SW14 SW15 SW16 SW17 SW18
DISPLAY
CONTINUE
SW8 SW9 SW10 SW11 SW12
AUTO SPACE
SHUFFLE
SW3 SW13 SW4 SW5 SW6 SW7
CLEAR
CHECK
OPEN/CLOSE
REPEAT
PROGRAM
(DISPLAY PANEL, LIQUID CRYSTAL)
DISC
SHUFFLE
SPACE
STEP
RMS
REPEAT
A-B
OVER
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
E-F BALANSE
FOCUS BIAS
FOCUS GAIN
TRACKING GAIN
RF PLL
PLAY
APPROX. 500mVp-p
APPROX. 100mVp-p
CNJ1 CNJ2 CNJ3 CNJ4 CNJ5 CNJ10
OPEN: 4.8
CLOSE: 4.8
CLOSE: 2.4
OPEN: -3.6
CLOSE: 4.2


IC3
CXD1125Q
DIGITAL SIGNAL PROCESSOR / CLV SERVO
IC15
LC9600P-144
16 Bit RAM
IC8
μPC4570HA
HEADPHONE AMP
HEADPHONE BOARD
IC6
M5218L
LINE AMP
Q14
2SA1345
MUTE
IC4
CXD1162P
D/F
IC5
CXD1161P-1
D/A CONVERTER
IC7
M5218L
LINE AMP
Q16,17
2SC362
EFM
Q18,19
2SC362
MUTE
LINE OUT
Q7
2SC3402
SWITCH
Q8
2SC3399
SWITCH
Q10
2SC3399
SWITCH
Q9
2SC3399
SWITCH
D12
1SS132
Q15
2SA1345
EFM
Q2 2SB1274SA
+5V REG
IC9
M5290P-16
+/-5V REG
Q5
2SC3399
SWITCH
D1-5
10E2
[POWER B BOARD]
[POWER A BOARD]
IC13
MSC6458-20SS
SYSTEM CONTROL
IC10
M5231TL
+30V REG
OVER CURRENT LIMITER
OVER HEAT PROTECT
ERROR AMP
REF REG GENERATOR
START CIRCUIT
Q6 2SC3399
SWITCH
Q1 2SD1913SA
-5V REG
D6 RD5.1ES-B
D7
RD6.8ES-B
Q11
2SC3399
SWITCH
D8-10
1SS132
DISPLAY PANEL, LIQUID CRYSTAL
DISC
SHUFFLE
SPACE
RMS
STEP
REPEAT
A-B
OVER
REMOTE CONTROL RECEIVER UNIT SENSOR HOLDER
IC14
GP-1U52
CNJ10
SW16 DISPLAY
SW17
SW18 CONTINUE
SW10 AUTO SPACE
SW11
SW12 SHUFFLE
SW5 REPEAT
SW6
SW7 PROGRAM
SW1 POWER
ON OFF
[POWER SWITCH BOARD]
J1 HEADPHONES
J2 AC INLET
SW2 VOLTAGE SELECTOR
110-120V
220-240V
PS1 ICP-F75 2.7A
PS2 ICP-F75 2.7A
PT901
X2 4MHz
X1 16MHz
CNJ7
CNJ12
CNJ8
CNJ11
PNJ-1
PNJ-2

SECTION 3
EXPLODED VIEWS AND PARTS LIST

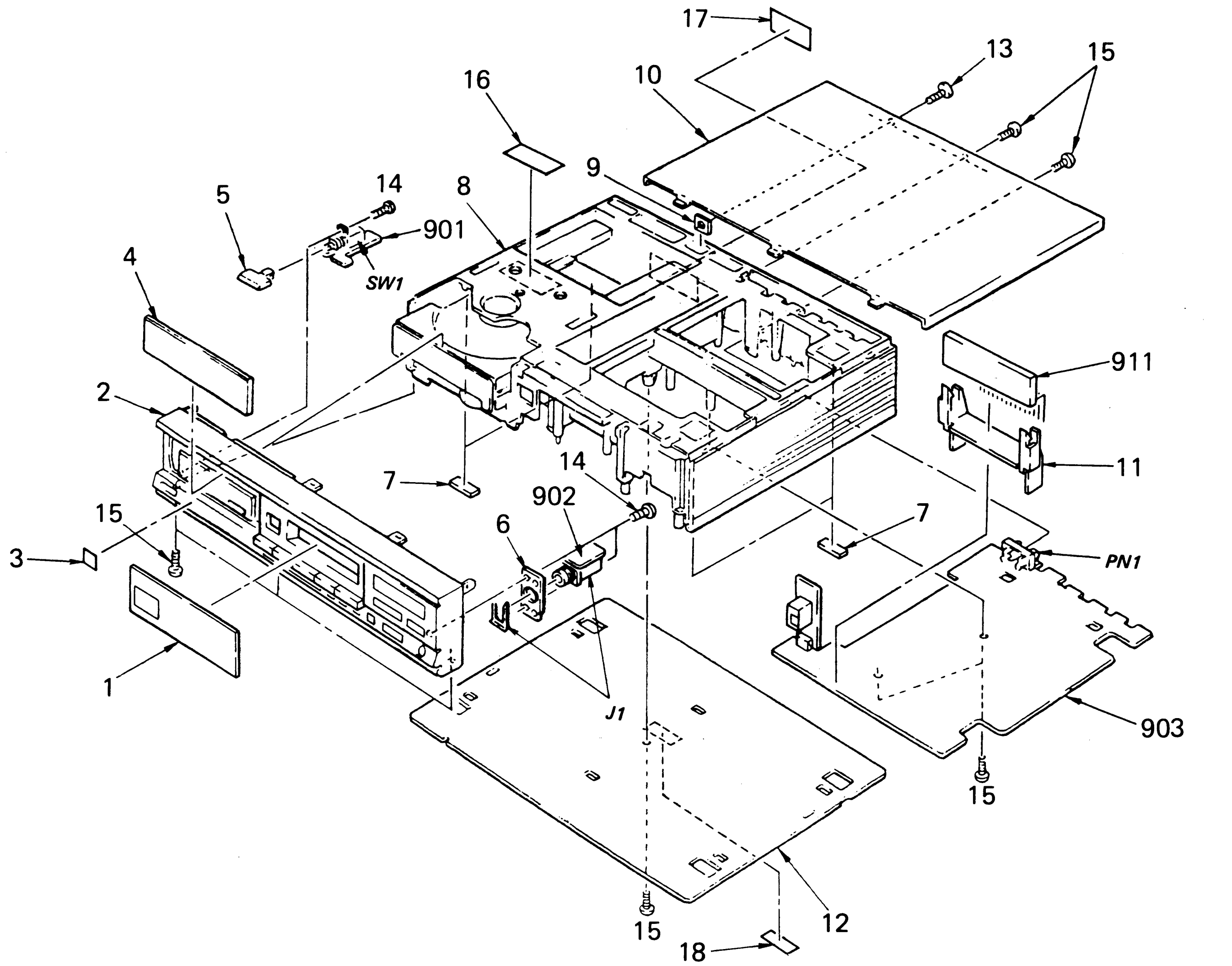
NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts
  Example:
  (RED) ... KNOB, BALANCE (WHITE)
  ↑ Cabinet's Color ↑ Parts' Color

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

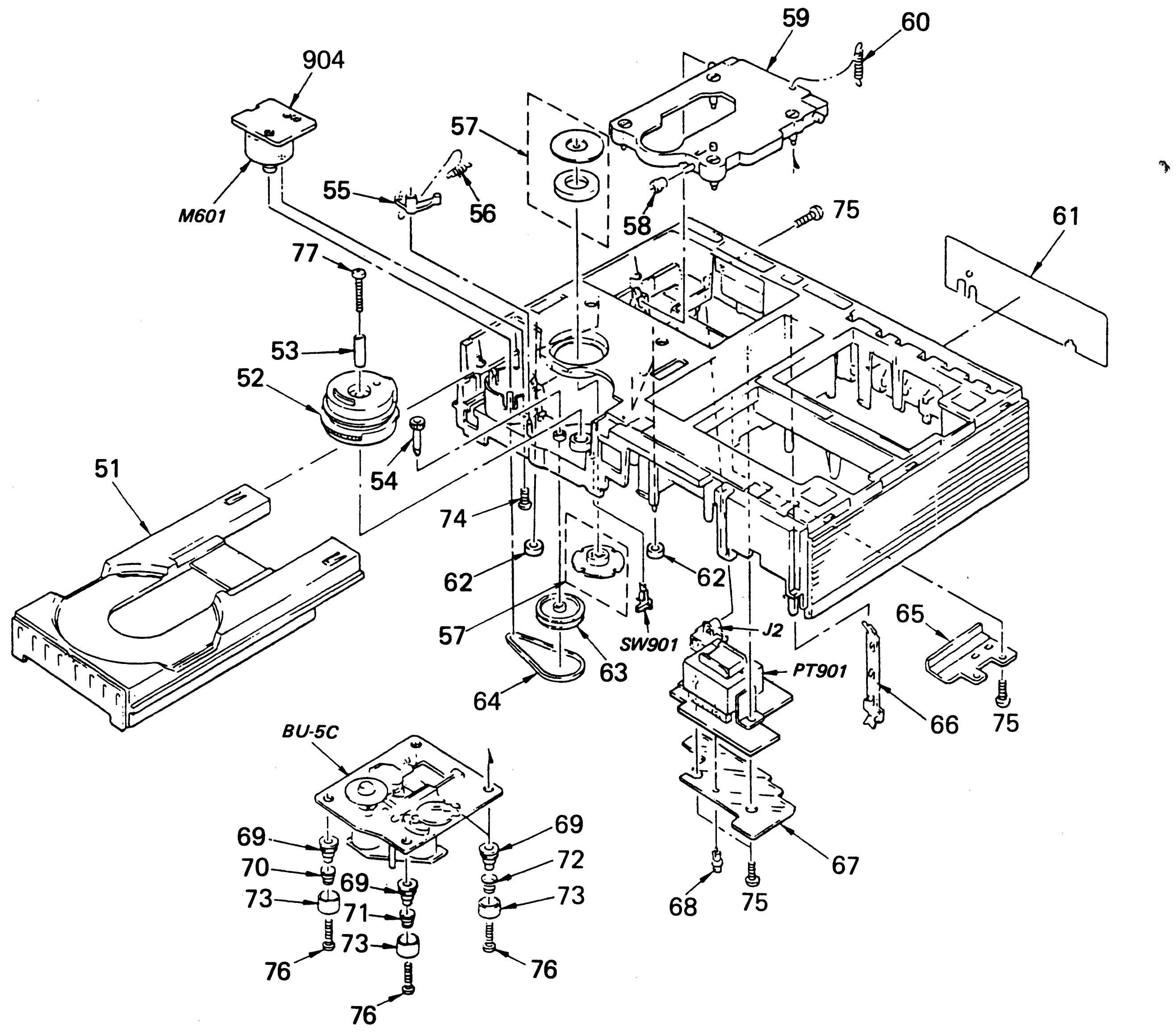
Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

(1) CABINET ASSEMBLY



No.	Part No.	Description	Remarks
1	4-922-614-01	PLATE, INDICATION	
2	X-4917-535-1	(GRAY:E,Canadian,Saudi Arabia) ....PANEL ASSY, FRONT	
	X-4917-536-1	(GRAY:AEP,UK)........PANEL ASSY, FRONT	
	X-4917-537-1	(BLACK:AEP)..........PANEL ASSY, FRONT	
	X-4917-540-1	(BLACK:E,Canadian)...PANEL ASSY, FRONT	
3	3-703-713-41	STICKER, SONY SYMBOL (10)	
4	4-922-609-01	(GRAY)....PANEL, LOADING	
	4-922-609-11	(BLACK)...PANEL, LOADING	
5	4-917-525-11	(BLACK)...KNOB, POWER	
	4-917-525-41	(GRAY)....KNOB, POWER	
6	*4-922-608-01	BRACKET (HP)	
7	4-917-524-01	FELT, FOOT	
8	X-4917-533-1	FRAME ASSY	
9	*4-918-670-01	SUPPORT, GROUND	
10	4-917-536-01	(BLACK)...CASE	
	4-917-536-31	(GRAY)....CASE	
11	*4-922-613-01	HOLDER	
12	*4-917-535-01	PLATE, BOTTOM	
13	3-703-685-21	SCREW (+BV 3X8)	
14	7-685-133-19	SCREW +BTP 2.6X6 TYPE2 N-S	
15	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
16	*4-885-843-02	(AEP,E,UK,Saudi Arabia) ...LABEL, CAUTION, LASER	
17	*4-885-838-00	(AEP,E,UK,Saudi Arabia)...LABEL, CLASS 1	
18	3-703-079-21	(UK)....LABEL, CAUTION (BACK)	
901	*1-623-668-11	PC BOARD, POWER SW	
902	*1-623-669-11	PC BOARD, HEADPHONE	
903	*A-4651-147-A	(AEP,UK)..........MOUNTED PCB, MAIN	
	*A-4651-148-A	(E,Saudi Arabia)...MOUNTED PCB, MAIN	
	*A-4651-165-A	(Canadian).........MOUNTED PCB, MAIN	
911	1-519-440-11	INDICATOR TUBE, FLUORESCENT	

(2) FRAME ASSEMBLY



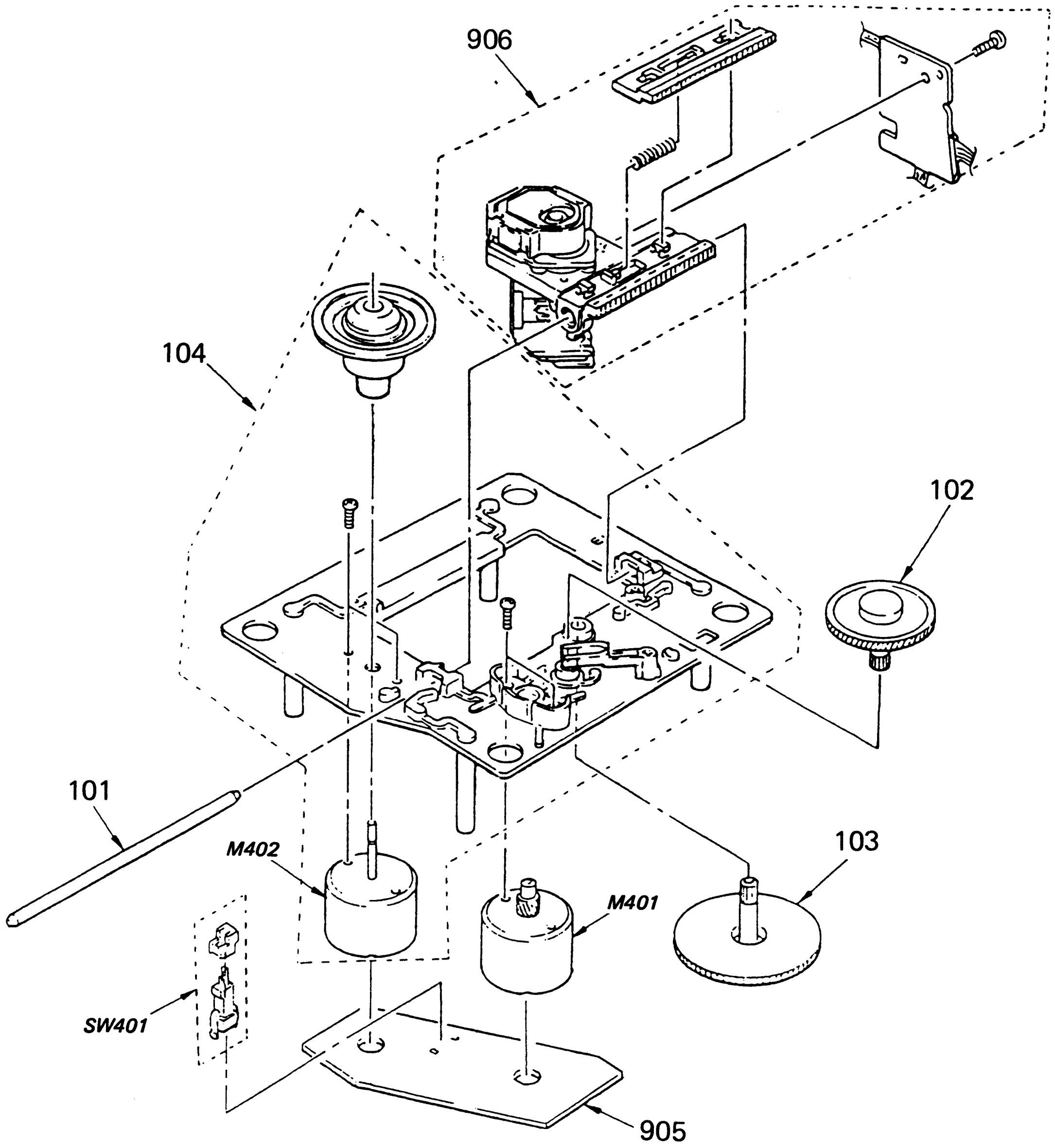
No.	Part No.	Description	Remarks
51	*4-922-604-01	TABLE, DISK	
52	4-917-534-01	GEAR (A), LOADING	
53	*4-917-523-01	COLLAR, CAM	
54	4-917-516-01	GEAR (B), LOADING	
55	4-917-519-01	LEVER, SET	
56	4-917-514-01	SPRING, TENSION	
57	A-4665-024-A	MAGNET ASSY	
58	4-917-515-01	ROLLER	
59	4-917-537-01	BASE, FLOATING	
60	4-917-526-01	SPRING, TENSION	
61	4-918-695-01	(AEP)..............PLATE, INDICATION	
	4-918-696-01	(UK)...............PLATE, INDICATION	
	4-918-697-01	(Canadian).........PLATE, INDICATION	
	4-918-698-01	(E,Saudi Arabia)...PLATE, INDICATION	
62	*3-576-990-01	CUSHION	
63	4-917-521-01	PULLEY, LOADING	
64	4-917-522-01	BELT	
65	*4-917-517-01	GUIDE, LEAD	
66	*4-917-511-01	PLATE, GROUND	
67	4-917-510-01	SHEET, INSULATING	
68	*3-531-576-11	RIVET	
69	4-917-562-01	INSULATOR	
70	4-917-541-01	SPRING (B)	
71	4-918-669-01	SPRING (W)	
72	4-917-507-01	SPRING (H)	
73	4-917-508-01	HOLDER, SP	
74	7-621-759-30	+PSW, 2.6X5	
75	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
76	7-685-535-19	SCREW +BTP 2.6X10 TYPE2 N-S	
77	7-685-552-19	SCREW +BTP 3X25 TYPE2 N-S	
904	*1-620-603-11	PC BOARD, LOADING MOTOR	
M601	A-4608-330-A	MOTOR ASSY (LOADING)	
PT901⚠	1-449-024-11	(Canadian).........TRANSFORMER, POWER	
PT901⚠	1-449-025-11	(AEP)..............TRANSFORMER, POWER	
PT901⚠	1-449-026-11	(E,Saudi Arabia)...TRANSFORMER, POWER	
SW901	1-570-203-11	SWITCH, LEAF (LOADING)	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

MC-Service

(3) PICKUP ASSEMBLY (BU-5C)



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
101	4-917-565-01	SHAFT, SLED		905	*1-624-322-11	PC BOARD, SL/SP MOTOR	
102	4-917-567-01	GEAR (M)		906	⚠8-848-062-01	PICKUP, OPTICS KSS-150A	
103	4-917-564-01	GEAR (P), FLATNESS		M401	X-4917-504-1	MOTOR ASSY (SLED)	
104	X-4917-523-1	BASE ASSY (SPINDLE MOTOR M402)		SW401	1-571-274-11	SWITCH, LEAF (LIMIT)	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

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SECTION 4

ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description			
901	*1-623-668-11	PC BOARD, POWER SW			
902	*1-623-669-11	PC BOARD, HEADPHONE			
903	*A-4651-147-A	(AEP ,UK)...........MOUNTED PCB, MAIN			
	*A-4651-148-A	(E ,Saudi Arabia)...MOUNTED PCB, MAIN			
	*A-4651-165-A	(Canadian).........MOUNTED PCB, MAIN			
904	*1-620-603-11	PC BOARD, LOADING MOTOR			
905	*1-624-322-11	PC BOARD, SL/SP MOTOR			
906	⚠8-848-062-01	PICKUP, OPTICS KSS-150A			
911	1-519-440-11	INDICATOR TUBE, FLUORESCENT			
C101	1-124-556-11	ELECT	2200MF	20%	16V
C102	1-124-898-11	ELECT	4700MF	20%	16V
C103	1-124-674-91	ELECT	220MF	20%	10V
C104	1-124-674-91	ELECT	220MF	20%	10V
C110	1-124-572-11	ELECT	100MF	20%	63V
C111	1-123-875-11	ELECT	10MF	20%	50V
C112	1-123-875-11	ELECT	10MF	20%	50V
C113	1-123-875-11	ELECT	10MF	20%	50V
C202	1-124-674-91	ELECT	220MF	20%	10V
C203	1-124-674-91	ELECT	220MF	20%	10V
C204	1-124-674-91	ELECT	220MF	20%	10V
C205	1-123-369-00	ELECT	4.7MF	20%	50V
C206	1-123-369-00	ELECT	4.7MF	20%	50V
C207	1-136-159-00	FILM	0.033MF	5%	50V
C208	1-136-159-00	FILM	0.033MF	5%	50V
C209	1-161-374-11	CERAMIC	0.0015MF	20%	16V
C210	1-161-374-11	CERAMIC	0.0015MF	20%	16V
C211	1-162-211-31	CERAMIC	33PF	5%	50V
C212	1-162-211-31	CERAMIC	33PF	5%	50V
C215	1-161-379-00	CERAMIC	0.01MF	20%	16V
C216	1-161-494-00	CERAMIC	0.022MF		25V
C217	1-161-494-00	CERAMIC	0.022MF		25V
C302	1-124-477-11	ELECT	47MF	20%	16V
C303	1-161-375-00	CERAMIC	0.0022MF	20%	16V
C304	1-162-203-31	CERAMIC	15PF	5%	50V
C305	1-162-203-31	CERAMIC	15PF	5%	50V
C306	1-136-159-00	FILM	0.033MF	5%	50V
C307	1-161-377-00	CERAMIC	0.0047MF	30%	16V
C308	1-136-159-00	FILM	0.033MF	5%	50V
C309	1-136-153-00	FILM	0.01MF	5%	50V
C310	1-161-375-00	CERAMIC	0.0022MF	20%	16V
C311	1-124-477-11	ELECT	47MF	20%	16V
C312	1-124-499-11	ELECT	1MF	20%	50V
C313	1-161-375-00	CERAMIC	0.0022MF	20%	16V
C314	1-136-165-00	FILM	0.1MF	5%	50V
C315	1-136-159-00	FILM	0.033MF	5%	50V
C316	1-123-382-00	ELECT	3.3MF	20%	50V
C317	1-136-165-00	FILM	0.1MF	5%	50V
C318	1-124-477-11	ELECT	47MF	20%	16V
C319	1-162-282-31	CERAMIC	100PF	10%	50V
C320	1-123-875-11	ELECT	10MF	20%	50V
C321	1-162-282-31	CERAMIC	100PF	10%	50V
C322	1-136-169-00	FILM	0.22MF	5%	50V
C323	1-124-477-11	ELECT	47MF	20%	16V
C324	1-124-499-11	ELECT	1MF	20%	50V
C325	1-161-377-00	CERAMIC	0.0047MF	30%	16V
C326	1-123-369-00	ELECT	4.7MF	20%	25V
C327	1-124-499-11	ELECT	1MF	20%	50V
C328	1-124-477-11	ELECT	47MF	20%	16V
C329	1-161-375-00	CERAMIC	0.0022MF	20%	16V
C330	1-124-477-11	ELECT	47MF	20%	16V
C331	1-162-282-31	CERAMIC	100PF	10%	50V
C332	1-124-499-11	ELECT	1MF	20%	50V
C333	1-123-875-11	ELECT	10MF	20%	50V
C334	1-124-477-11	ELECT	47MF	20%	16V
C335	1-136-159-00	FILM	0.033MF	5%	50V
C336	1-124-902-00	ELECT	0.47MF	20%	50V
C337	1-161-379-00	CERAMIC	0.01MF	20%	16V
C338	1-124-902-00	ELECT	0.47MF	20%	50V
C339	1-124-477-11	ELECT	47MF	20%	16V
C340	1-124-236-00	ELECT	47MF	20%	16V
C341	1-124-477-11	ELECT	47MF	20%	16V
C342	1-162-207-31	CERAMIC	22PF	5%	50V
C343	1-162-207-31	CERAMIC	22PF	5%	50V
C348	1-124-236-00	ELECT	47MF	20%	16V
C349	1-124-236-00	ELECT	47MF	20%	16V
C350	1-161-379-00	CERAMIC	0.01MF	20%	16V
C351	1-162-290-31	CERAMIC	470PF	10%	50V
C401	1-106-351-00	MYLAR	0.0022MF	5%	50V
C402	1-106-351-00	MYLAR	0.0022MF	5%	50V
C501	1-161-377-00	CERAMIC	0.0047MF	30%	16V
C502	1-161-377-00	CERAMIC	0.0047MF	30%	16V
C601	1-136-157-00	FILM	0.022MF	5%	50V
CNJ1	*1-564-724-11	PIN, CONNECTOR (SMALL TYPE) 8P			
CNJ2	*1-564-724-31	PIN, CONNECTOR (SMALL TYPE) 8P			
CNJ3	*1-564-720-11	PIN, CONNECTOR (SMALL TYPE) 4P			
CNJ4	*1-564-336-00	PIN, CONNECTOR 2P			
CNJ5	*1-564-337-00	PIN, CONNECTOR 3P			
CNJ7	*1-564-705-11	PIN, CONNECTOR (SMALL TYPE) 3P			
CNJ8	*1-564-710-11	PIN, CONNECTOR (SMALL TYPE) 8P			
CNJ10	*1-566-165-11	CONNECTOR, BOARD TO BOARD 3P			
CNJ11	*1-566-779-11	PIN, CONNECTOR (PC BOARD) 4P			

Ref.No.	Part No.	Description
CNJ12	*1-564-705-11	PIN, CONNECTOR (SMALL TYPE) 3P
CNJ401	*1-564-720-21	PIN, CONNECTOR (SMALL TYPE) 4P
D1	8-719-200-77	DIODE 10E2N
D2	8-719-200-77	DIODE 10E2N
D3	8-719-200-77	DIODE 10E2N
D4	8-719-200-77	DIODE 10E2N
D5	8-719-200-77	DIODE 10E2N
D6	8-719-109-83	DIODE RD5.1ES-B
D7	8-719-109-95	DIODE RD6.8ES-B
D8	8-719-940-76	DIODE 1SS132
D9	8-719-940-76	DIODE 1SS132
D10	8-719-940-76	DIODE 1SS132
D11	8-719-940-76	DIODE 1SS132
D12	8-719-940-76	DIODE 1SS132
IC1	8-752-031-80	IC CXA1081S
IC2	8-752-032-33	IC CXA1182S
IC3	8-752-322-04	IC CXD1125Q
IC4	8-759-946-62	IC CXD1162P
IC5	8-759-805-29	IC CXD1161P-1
IC6	8-759-600-02	IC M5218L
IC7	8-759-600-02	IC M5218L
IC8	8-759-106-61	IC UPC4570HA
IC9	8-759-630-21	IC M5290P-16
IC10	8-759-605-43	IC M5231TL
IC11	8-759-805-18	IC LA6520
IC12	8-759-208-96	IC TA8406P
IC13	8-759-945-86	IC MSC6458-18SS
IC14	8-749-920-03	IC GP1U52
IC15	1-808-060-11	IC LC9600P-144
J1	1-563-485-21	JACK, LARGE TYPE (HEADPHONES)
J2	⚠.1-526-931-11	(AEP,UK)...........INLET, AC
J2	⚠.1-526-929-11	(E,Saudi Arabia)...INLET, AC
J2	⚠.1-526-930-11	(Canadian).........INLET, AC
M401	X-4917-504-1	MOTOR ASSY (SLED)
M402	X-4917-523-1	BASE ASSY (SPINDLE MOROR)
M601	A-4608-330-A	MOTOR ASSY (LOADING)
PN1	*1-562-999-21	JACK, PIN 2P (LINE OUT)
PS1	⚠1-532-686-00	(AEP,UK,E,Saudi Arabia)...LINK, IC (ICP-F75 2.7A)
PS2	⚠1-532-686-00	(AEP,UK,E,Saudi Arabia)...LINK, IC (ICP-F75 2.7A)
PT901	⚠.1-449-024-11	(Canadian).........TRANSFORMER, POWER
PT901	⚠.1-449-025-11	(AEP)..............TRANSFORMER, POWER
PT901	⚠.1-449-026-11	(E,Saudi Arabia)...TRANSFORMER, POWER

Ref.No.	Part No.	Description			
Q1	8-729-808-76	TRANSISTOR 2SD1913SA-Q			
Q2	8-729-808-72	TRANSISTOR 2SB1274SA-Q			
Q3	8-729-801-83	TRANSISTOR 2SB1013			
Q5	8-729-806-38	TRANSISTOR 2SC3399			
Q6	8-729-806-38	TRANSISTOR 2SC3399			
Q7	8-729-806-28	TRANSISTOR 2SC3402			
Q8	8-729-806-38	TRANSISTOR 2SC3399			
Q9	8-729-806-38	TRANSISTOR 2SC3399			
Q10	8-729-806-38	TRANSISTOR 2SC3399			
Q11	8-729-806-38	TRANSISTOR 2SC3399			
Q14	8-729-806-20	TRANSISTOR 2SA1345			
Q15	8-729-806-20	TRANSISTOR 2SA1345			
Q16	8-729-107-91	TRANSISTOR 2SC3622-L			
Q17	8-729-107-91	TRANSISTOR 2SC3622-L			
Q18	8-729-107-91	TRANSISTOR 2SC3622-L			
Q19	8-729-107-91	TRANSISTOR 2SC3622-L			
R101	1-249-425-11	CARBON	4.7K	5%	1/4W
R102	1-249-425-11	CARBON	4.7K	5%	1/4W
R103	1-249-429-11	CARBON	10K	5%	1/4W
R104	1-249-424-11	CARBON	3.9K	5%	1/4W
R105	1-249-424-11	CARBON	3.9K	5%	1/4W
R106	1-249-439-11	CARBON	68K	5%	1/4W
R107	1-249-417-11	CARBON	1K	5%	1/4W
R108	1-249-431-11	CARBON	15K	5%	1/4W
R109	1-249-381-11	CARBON	1	5%	1/4W
R201	1-259-428-11	CARBON	1K	5%	1/6W
R202	1-259-464-11	CARBON	33K	5%	1/6W
R203	1-259-464-11	CARBON	33K	5%	1/6W
R204	1-259-472-11	CARBON	68K	5%	1/6W
R205	1-259-472-11	CARBON	68K	5%	1/6W
R206	1-259-474-11	CARBON	82K	5%	1/6W
R207	1-259-474-11	CARBON	82K	5%	1/6W
R208	1-259-428-11	CARBON	1K	5%	1/6W
R209	1-259-428-11	CARBON	1K	5%	1/6W
R210	1-259-428-11	CARBON	1K	5%	1/6W
R211	1-259-428-11	CARBON	1K	5%	1/6W
R212	1-259-420-11	CARBON	470	5%	1/6W
R213	1-259-420-11	CARBON	470	5%	1/6W
R214	1-249-441-11	CARBON	100K	5%	1/4W
R215	1-249-441-11	CARBON	100K	5%	1/4W
R216	1-249-425-11	CARBON	4.7K	5%	1/4W
R217	1-249-425-11	CARBON	4.7K	5%	1/4W
R218	1-249-425-11	CARBON	4.7K	5%	1/4W
R219	1-249-425-11	CARBON	4.7K	5%	1/4W
R222	1-259-408-11	CARBON	150	5%	1/6W
R223	1-259-408-11	CARBON	150	5%	1/6W

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description			
R224	1-259-416-11	CARBON	330	5%	1/6W
R225	1-259-416-11	CARBON	330	5%	1/6W
R226	1-259-500-11	CARBON	1M	5%	1/6W
R227	1-259-500-11	CARBON	1M	5%	1/6W
R228	1-259-480-11	CARBON	150K	5%	1/6W
R229	1-259-480-11	CARBON	150K	5%	1/6W
R301	1-215-454-00	CARBON	24K	5%	1/4W
R302	1-249-428-11	CARBON	8.2K	5%	1/4W
R303	1-249-431-11	CARBON	15K	5%	1/4W
R304	1-249-431-11	CARBON	15K	5%	1/4W
R305	1-249-425-11	CARBON	4.7K	5%	1/4W
R306	1-249-417-11	CARBON	1K	5%	1/4W
R307	1-249-397-11	CARBON	22	5%	1/4W
R308	1-249-405-11	CARBON	100	5%	1/4W
R309	1-249-425-11	CARBON	4.7K	5%	1/4W
R310	1-215-472-00	CARBON	130K	5%	1/4W
R311	1-215-479-00	CARBON	270K	5%	1/4W
R312	1-249-435-11	CARBON	33K	5%	1/4W
R313	1-249-440-11	CARBON	82K	5%	1/4W
R314	1-249-425-11	CARBON	4.7K	5%	1/4W
R315	1-249-423-11	CARBON	3.3K	5%	1/4W
R316	1-249-439-11	CARBON	68K	5%	1/4W
R317	1-249-438-11	CARBON	56K	5%	1/4W
R318	1-249-381-11	CARBON	1	5%	1/4W
R319	1-249-381-11	CARBON	1	5%	1/4W
R320	1-249-440-11	CARBON	82K	5%	1/4W
R321	1-249-441-11	CARBON	100K	5%	1/4W
R322	1-249-441-11	CARBON	100K	5%	1/4W
R323	1-249-441-11	CARBON	100K	5%	1/4W
R324	1-249-429-11	CARBON	10K	5%	1/4W
R325	1-215-486-00	CARBON	510K	5%	1/4W
R326	1-249-414-11	CARBON	560	5%	1/4W
R327	1-249-433-11	CARBON	22K	5%	1/4W
R328	1-249-429-11	CARBON	10K	5%	1/4W
R329	1-249-441-11	CARBON	100K	5%	1/4W
R330	1-215-434-00	METAL	3.6K	1%	1/6W
R331	1-249-441-11	CARBON	100K	5%	1/4W
R332	1-215-493-00	CARBON	1M	5%	1/4W
R333	1-249-433-11	CARBON	22K	5%	1/4W
R334	1-249-429-11	CARBON	10K	5%	1/4W
R335	1-249-441-11	CARBON	100K	5%	1/4W
R336	1-249-441-11	CARBON	100K	5%	1/4W
R337	1-215-469-00	METAL	100K	1%	1/6W
R338	1-215-469-00	METAL	100K	1%	1/6W
R339	1-249-429-11	CARBON	10K	5%	1/4W
R341	1-249-429-11	CARBON	10K	5%	1/4W
R342	1-249-417-11	CARBON	1K	5%	1/4W
R343	1-249-417-11	CARBON	1K	5%	1/4W
R345	1-249-417-11	CARBON	1K	5%	1/4W
R346	1-249-417-11	CARBON	1K	5%	1/4W
R347	1-249-417-11	CARBON	1K	5%	1/4W
R348	1-249-417-11	CARBON	1K	5%	1/4W
R349	1-259-416-11	CARBON	330	5%	1/6W
R353	1-249-425-11	CARBON	4.7K	5%	1/4W
R354	1-249-425-11	CARBON	4.7K	5%	1/4W
R355	1-249-425-11	CARBON	4.7K	5%	1/4W
R356	1-249-425-11	CARBON	4.7K	5%	1/4W

Ref.No.	Part No.	Description			
R357	1-249-425-11	CARBON	4.7K	5%	1/4W
R358	1-249-425-11	CARBON	4.7K	5%	1/4W
R359	1-249-425-11	CARBON	4.7K	5%	1/4W
R360	1-249-424-11	CARBON	3.9K	5%	1/4W
R361	1-249-438-11	CARBON	56K	5%	1/4W
R362	1-249-417-11	CARBON	1K	5%	1/4W
RV1	1-237-194-21	RES, ADJ, CARBON 20K			
RV2	1-237-192-21	RES, ADJ, CARBON 5K			
RV3	1-237-194-21	RES, ADJ, CARBON 20K			
RV4	1-237-194-21	RES, ADJ, CARBON 20K			
RV5	1-228-990-00	RES, ADJ, METAL GLAZE 1K			
SW1	**⚠.1-552-928-00**	**SWITCH, PUSH (POWER)**			
SW2	**⚠.1-570-046-11**	**(E,Saudi Arabia) ...SWITCH, VOLTAGE CHANG**			
SW3	1-571-213-11	SWITCH, KEY BOARD (3 KEY)(CLEAR)			
SW4	1-554-088-00	SWITCH, KEY BOARD (OPEN/CLOSE)			
SW5	1-571-213-11	SWITCH, KEY BOARD (3 KEY)(REPEAT)			
SW6	1-571-213-11	SWITCH, KEY BOARD (3 KEY)(PLAY)			
SW7	1-571-214-11	SWITCH, KEY BOARD (4 KEY)(PROGRAM)			
SW8	1-571-214-11	SWITCH, KEY BOARD (4 KEY) (SEARCH REVERSE)			
SW9	1-571-214-11	SWITCH, KEY BOARD (4 KEY)(AMS REVERSE)			
SW10	1-571-213-11	SWITCH, KEY BOARD (3 KEY)(AUTO SPACE)			
SW11	1-571-213-11	SWITCH, KEY BOARD (3 KEY)(PAUSE)			
SW12	1-571-214-11	SWITCH, KEY BOARD (4 KEY)(SHUFFLE)			
SW13	1-571-214-11	SWITCH, KEY BOARD (4 KEY)(CHECK)			
SW14	1-571-214-11	SWITCH, KEY BOARD (4 KEY) (SEARCH FORWARD)			
SW15	1-571-214-11	SWITCH, KEY BOARD (4 KEY)(AMS FORWARD)			
SW16	1-554-088-11	SWITCH, KEY BOARD (DISPLAY)			
SW17	1-571-213-11	SWITCH, KEY BOARD (3 KEY)(STOP)			
SW18	1-571-214-11	SWITCH, KEY BOARD (4 KEY)(CONTINUE)			
SW401	1-571-274-11	SWITCH, LEAF (LIMIT)			
SW901	1-570-203-11	SWITCH, LEAF (LOADING)			
X1	1-567-908-21	VIBRATOR, CRYSTAL (16MHz)			
X2	1-567-686-11	OSCILLATOR, CERAMIC (4MHz)			

ACCESSORY & PACKING MATERIAL

1-506-409-00	(Saudi Arabia)...ADAPTOR, CONVERSION
⚠.1-526-565-00	**(E)...AC PLUG ADAPTOR**
1-558-543-11	CORD, CONNECTION
⚠.1-555-234-00	**(Saudi Arabia)...CORD, POWER**
⚠.1-556-280-00	**(E).............CORD, POWER**
⚠.1-558-032-11	**(UK).............CORD, POWER**
⚠.1-558-834-11	**(Canadian).......CORD, POWER**
⚠.1-558-835-11	**(AEP)...........CORD, POWER**
*3-764-942-11	(E,Saudi Arabia)...INSTRUCTION
*3-795-629-11	(AEP).............INSTRUCTION
3-769-600-11	(AEP,UK,Saudi Arabia) ....MANUAL, INSTRUCTION
3-769-600-21	(Canadian)....MANUAL, INSTRUCTION
3-769-600-31	(Canadian)....MANUAL, INSTRUCTION
3-769-600-41	(AEP).........MANUAL, INSTRUCTION
4-922-616-21	INDIVIDUAL CARTON
4-922-618-01	CUSHION

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Troubleshooting guide

The following checks will assist in the correction of most problems which you may encounter with your unit. Before going through the check list below, first refer back to the connections and operating procedures.

Symptom	**Cause**	**Remedy**
Play does not begin	The disc is incorrectly inserted.	Insert the disc correctly.
	The disc is extremely dirty.	Clean the disc.
	The disc is inserted upside down.	Insert the disc correctly.
	⏸ has been pressed.	Press ⏸ again to release pause.
	Moisture condensation.	Leave the player turned on for about an hour.
No sound from one or both channels	Incorrect connections.	Connect properly.

9-953-046-11

Sony Corporation
Audio Group

English
87L0568-1
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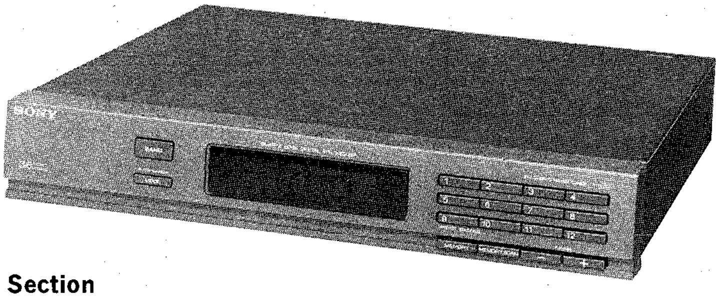
MC-Service

ST-D50L

SERVICE MANUAL

AEP Model
UK Model



This Set The Tuner Section
In XO-D50

SPECIFICATIONS

Tuner section

Syslem	MF slereo, FM/AM Superheterodyne tuner

FM tuner section

Tuning range	87.5 to 108 MHz
Antenna terminals	75 ohms unbalanced

MW/LW tuner section

	MW	LW
Tuning range	522 to 1,611 kHz (Italian model) 531 to 1,602 kHz (Other European countries)	144 to 288 kHz (Italian model) 153 to 281 kHz (Other European countries)
Anlenna	AM Loop antenna, External antenna terminal	
Intermediate frequency	450 kHz	

Dimensions	Approx. 355×70×310 mm (Wh/d) ($14 \times 2^{11}/_{16} \times 12^{1}/_{4}$ inches) Iricl. projecting parts and contiols
Weight	Apprtx. 1.9 kg (4 ld 3 oz)

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

MICROFILM

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—Tuner Section— 7
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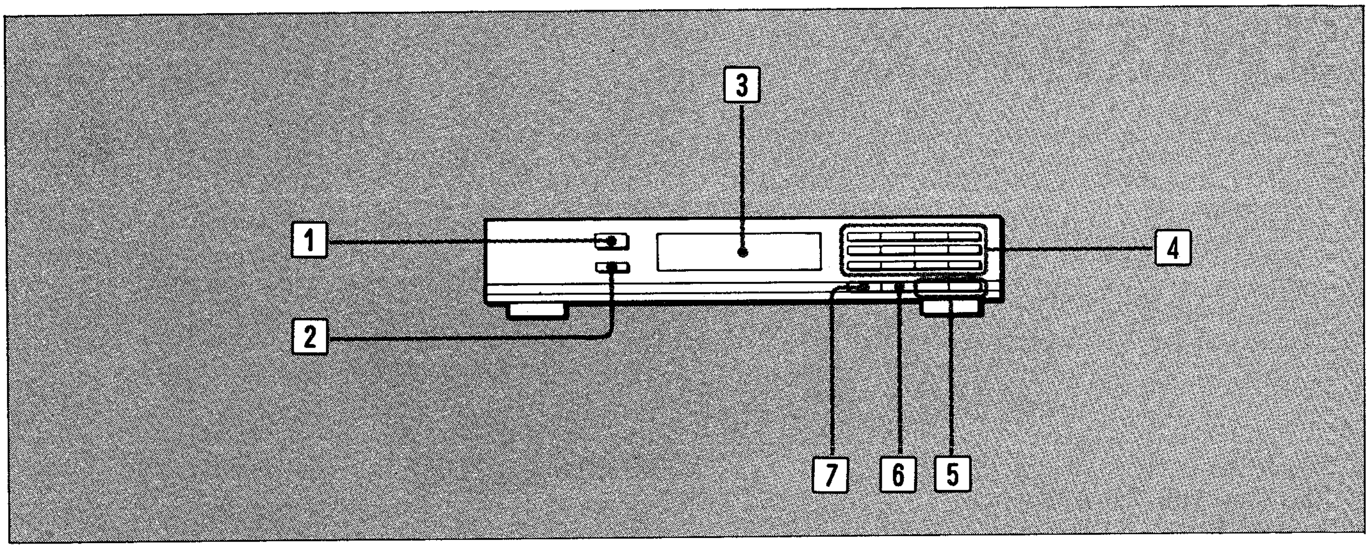
FM STEREO/FM/MW/LW TUNER

SONY®

SECTION 1
GENERAL

1-1. PARTS IDENTIFICATION



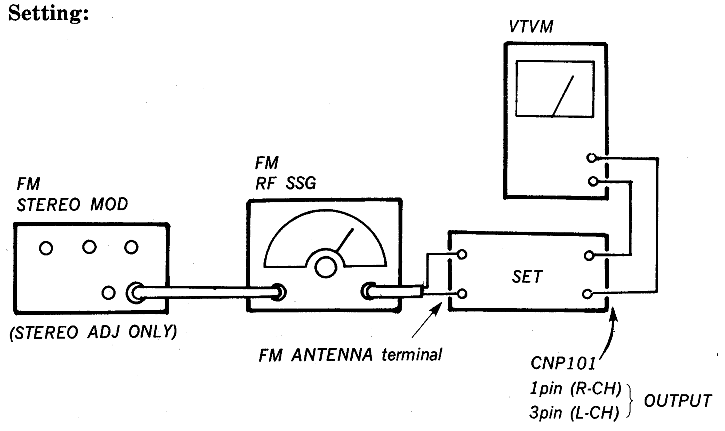
1 **BAND selector**
ST-D50L: FM, MW, LW
ST-D50S: FM, MW, SW1, SW2
2 **AUTO/MANUAL mode selector**
3 **Band/frequency display**
4 **PRESET buttons**
5 **TUNING +/– buttons (station selector)**
6 **MEMORY SCAN button**
7 **MEMORY button**

SECTION 2
ELECTRICAL ADJUSTMENTS

- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

2-1. FM SECTION ADJUSTMENT

Setting:


VTVM
FM RF SSG
FM STEREO MOD
SET
(STEREO ADJ ONLY)
FM ANTENNA terminal
CNP101
1pin (R-CH)
3pin (L-CH)
OUTPUT

Carrier frequency : 98MHz
Modulation : 1kHz
Deviation : 40kHz (MONO only)
Output level : 66dBμ (at NULL/STEREO Adjustment)
: 25dBμ (at TUNED Adjustment)

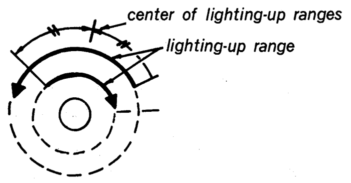
Stereo MOD setting
Sub channel : 38kHz
Deviation : 16.25kHz
Pilot signal : 19kHz
Deviation : 7.5kHz
Modulation : 1kHz—16.25kHz deviation

1. Discriminator Alignment (NULL check)

1. Push the TUNING (+, −) button for 98MHz.
2. Adjust T251 for 0V reading on the VTVM.
test point ≒ TP101

2. Tuned Lighting-on Adjustment

1. Puch the TUNING (+, −) button for 98MHz.
2. Tune RV103 clockwise or counterclockwise and memorize the lighting-up range of tuned indicator.
3. Adjust RV103 at the center of the lighting-up range of both turns as shown below.


center of lighting-up ranges
lighting-up range

3. Stereo Separation Adjustment

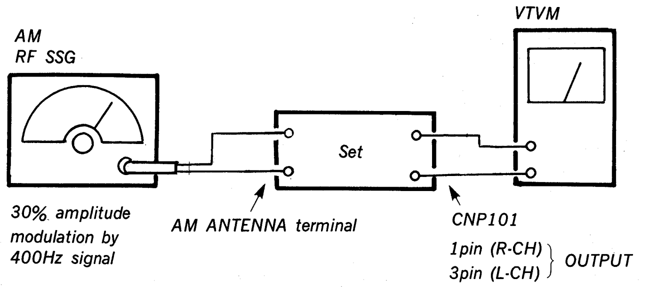
FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RV101 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RV101 for minimum reading.

L-CH Stereo separation : Ⓐ—Ⓑ
R-CH Stereo separation : Ⓒ—Ⓓ

The separation of both channels should be equal.
Specification : 35dB

2-2. AM SECTION ADJUSTMENTS

Setting:


VTVM
AM RF SSG
Set
30% amplitude modulation by 400Hz signal
AM ANTENNA terminal
CNP101
1pin (R-CH)
3pin (L-CH)
OUTPUT

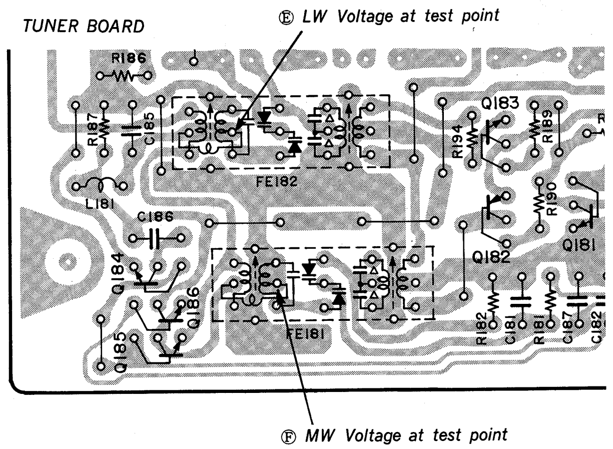
1. LW Frequency Coverage Adjustment

Frequency display in set	AEP, UK, WG model	153kHz	281kHz
	IT model	144kHz	288kHz
Adjustment part		FE182(OSC)	
Voltage at test point		VT Ⓔ 1V±0.2V	

2. MW Frequency Coverage Adjustment

Frequency display in set	AEP, UK, WG model	531kHz	1602kHz
	IT model	522kHz	1611kHz
Adjustment part		FE181(OSC)	
Voltage test point		VT Ⓕ ①V±0.2V	

Adjustment Location:


TUNER BOARD
Ⓔ LW Voltage at test point
R186
R187
C185
FE182
L181
C186
Q184
Q186
Q185
Q183
R194
R189
R190
Q181
Q182
R182
C181
R181
C187
C182
FE181
Ⓕ MW Voltage at test point

3. LW Tracking Adjustment

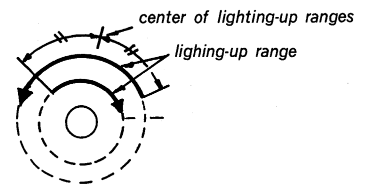
Frequency display in set	AEP, UK, WG model	153kHz
	IT model	144kHz
Adjustment part	FE182 (ANT)	
Adjustment for a maximum reading on VTVM.		

4. MW Tracking Adjustment

Frequency display in set	AEP, UK, WG model	531kHz
	IT model	522kHz
Adjustment part	FE181 (ANT)	
Adjust for a maximum reading on VTVM.		

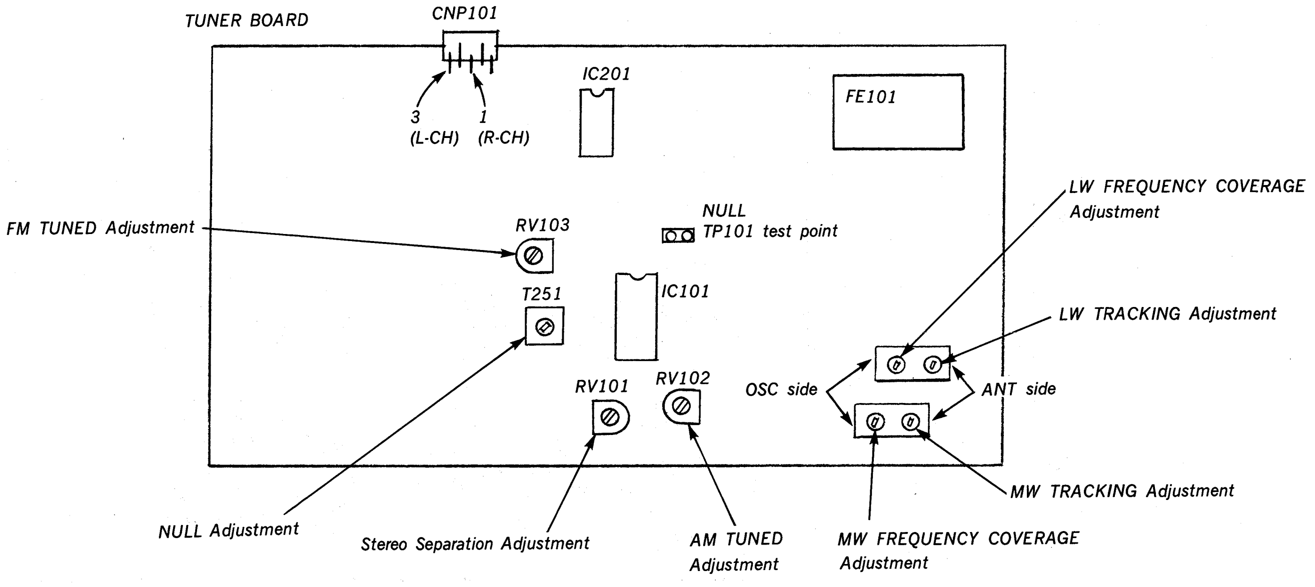
5. Tuned Lighting-on Adjustment

1. Push the TUNING (+, −) button for LW: 281kHz (AEP/UK, WG model) or 288kHz (IT model).
2. Turn RV102 clockwise or counter clockwise and memorize the lighting-up range of tuned indicator.
3. Adjust RV102 at the center of the lighting-up range of both turns as shown below.


center of lighting-up ranges
lighing-up range

At SSG OUTPUT 68dBμ

Adjustment Location:


TUNER BOARD
CNP101
3
1
(L-CH)
(R-CH)
IC201
FE101
LW FREQUENCY COVERAGE Adjustment
FM TUNED Adjustment
RV103
NULL
TP101 test point
T251
IC101
LW TRACKING Adjustment
RV101
RV102
OSC side
ANT side
MW TRACKING Adjustment
NULL Adjustment
Stereo Separation Adjustment
AM TUNED Adjustment
MW FREQUENCY COVERAGE Adjustment

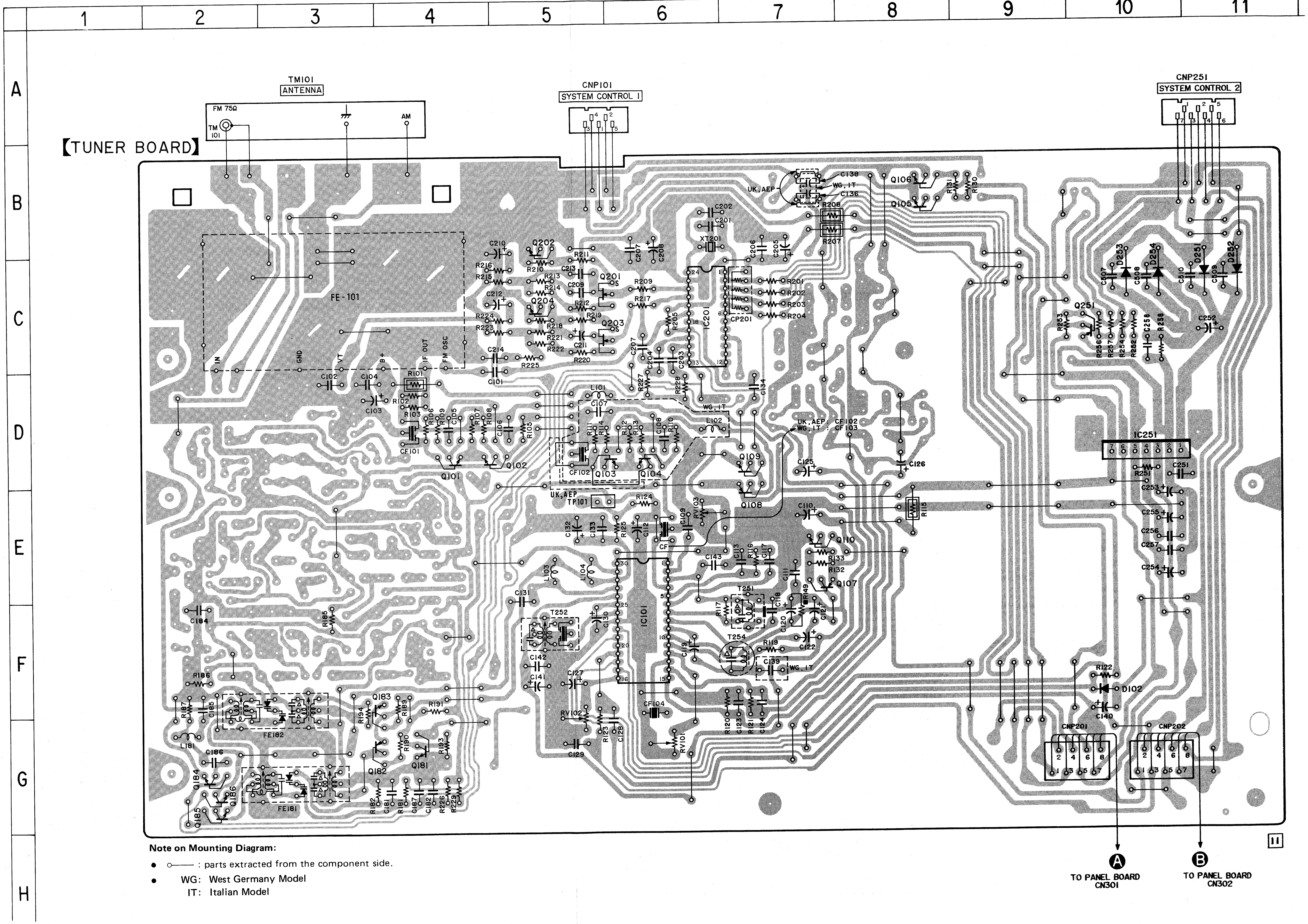
SECTION 3 DIAGRAMS

3-1. PRINTED WIRING BOARD—TUNER SECTION—

- Refer to page 10 for Semiconductor Lead Layouts.

- **Semiconductor Location**

Ref. No.	Location
D102	F-10
D251	C-11
D252	C-11
D253	C-10
D254	C-10
IC101	F-6
IC201	C-6
IC251	C-10
Q101	D-4
Q102	D-5
Q103	D-5
Q104	D-6
Q105	B-8
Q106	B-8
Q107	E-7
Q108	E-7
Q109	D-7
Q110	E-7
Q181	G-4
Q182	G-3
Q183	F-3
Q184	G-2
Q185	G-2
Q186	G-2
Q201	C-5
Q202	B-5
Q203	C-5
Q204	C-5
Q251	C-10

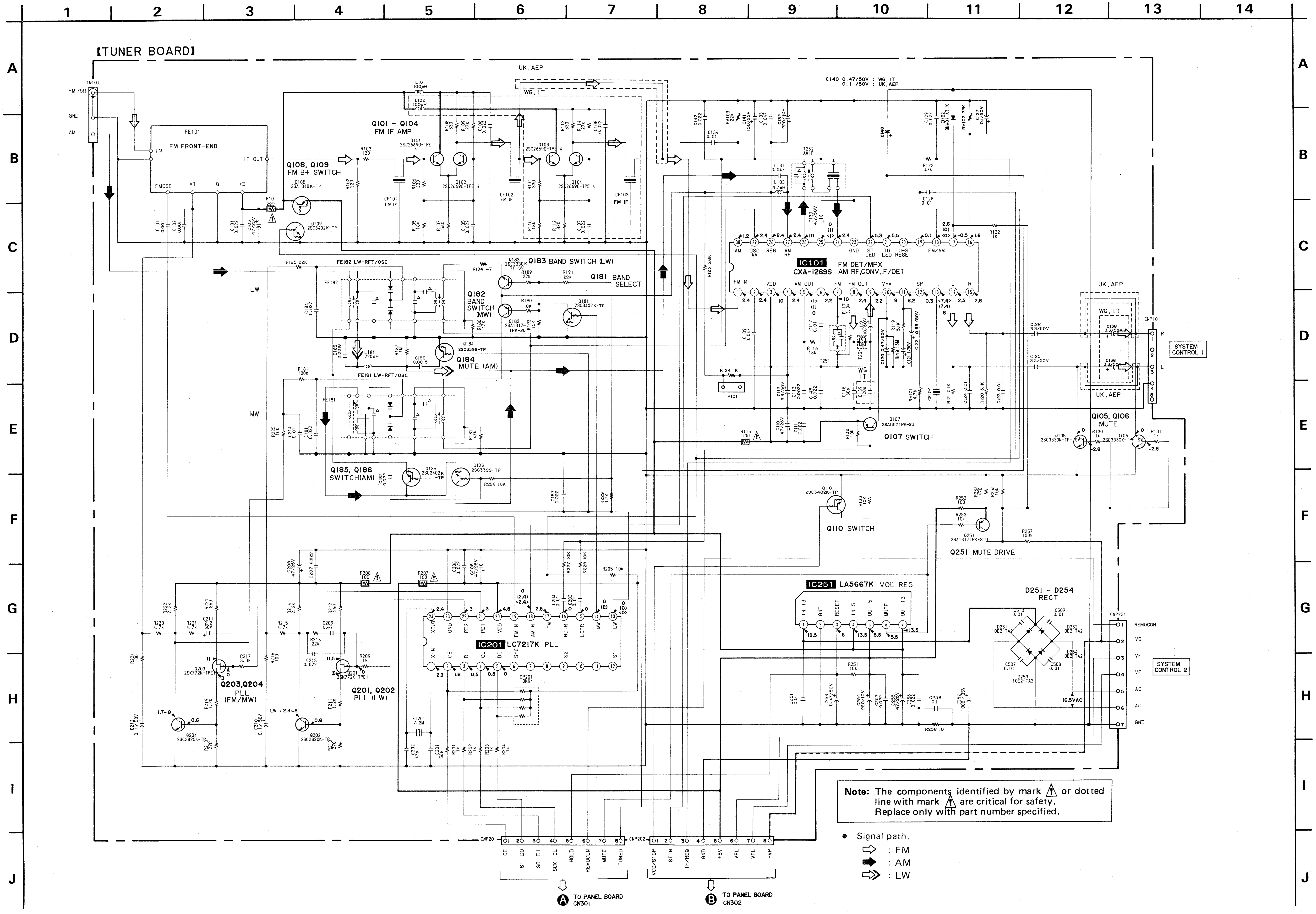

1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
TM101
ANTENNA
FM 75Ω
AM
CNP101
SYSTEM CONTROL 1
CNP251
SYSTEM CONTROL 2
【TUNER BOARD】
FE-101
IC101
IC201
IC251
UK, AEP
WG, IT
CNP201
CNP202
FE181
FE182
T251
T252
T254
TP101
11
TO PANEL BOARD CN301
TO PANEL BOARD CN302

Note on Mounting Diagram:

- ○—— : parts extracted from the component side.
- WG: West Germany Model
  IT: Italian Model

3-2. SCHEMFITIC DIAGRAM—TUNER SECTION—

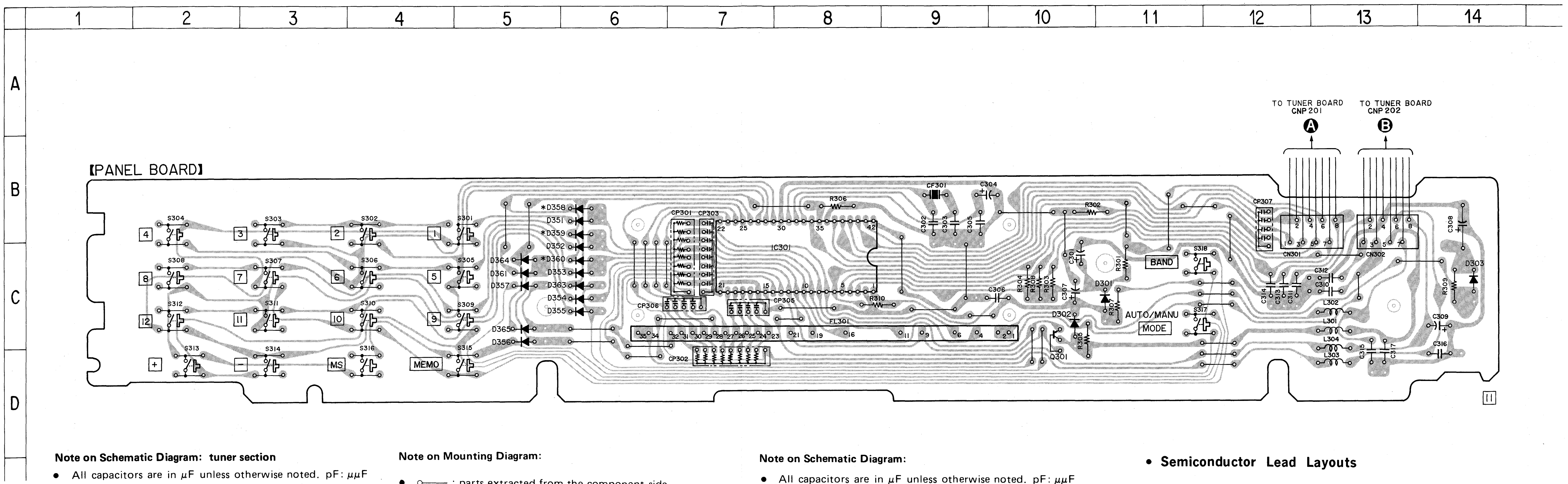
- Refer to page 9 for notes.


【TUNER BOARD】
FM 75Ω
GND
AM
TM101
FE101
FM FRONT-END
IN
IF OUT
FMOSC
VT
G
+B
Q108, Q109
FM B+ SWITCH
Q101 - Q104
FM IF AMP
CF101 FM IF
CF102 FM IF
CF103 FM IF
UK, AEP
WG, IT
L101 100μH
L102 100μH
FE182 LW-RFT/OSC
FE181 LW-RFT/OSC
LW
MW
Q183 BAND SWITCH (LW)
Q181 BAND SELECT
Q182 BAND SWITCH (MW)
Q184 MUTE (AM)
L181 220μH
Q185, Q186 SWITCH(AM)
IC101 FM DET/MPX
CXA-1269S AM RF,CONV,IF/DET
C140 0.47/50V : WG, IT
0.1 /50V : UK, AEP
T252 AM IF
T251
L103 4.7μH
TP101
Q107 SWITCH
Q105, Q106 MUTE
Q110 SWITCH
Q251 MUTE DRIVE
CNP101
SYSTEM CONTROL 1
IC201 LC7217K PLL
XT201 7.2M
CP201 10KX4
Q203,Q204 PLL (FM/MW)
Q201, Q202 PLL (LW)
IC251 LA5667K VOL REG
D251 - D254 RECT
CNP251
REMOCON
VG
VF
VF
AC
AC
GND
16.5VAC
SYSTEM CONTROL 2
CNP201
CE
SI DO
SO DI
SCK CL
HOLD
REMOCON
MUTE
TUNED
CNP202
VCD/STOP
ST IN
IF/REQ
GND
+5V
VFL
VFL
-VP
TO PANEL BOARD CN301
TO PANEL BOARD CN302
A
B
1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
I
J

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- Signal path.
  - ⇨ : FM
  - ➡ : AM
  - ⇨⇨ : LW

3-3. PRINTED WIRING BOARD—Panel section—


1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
[PANEL BOARD]
TO TUNER BOARD CNP201
Ⓐ
TO TUNER BOARD CNP202
Ⓑ
S301
S302
S303
S304
S305
S306
S307
S308
S309
S310
S311
S312
S313
S314
S315
S316
S317
S318
1
2
3
4
5
6
7
8
9
10
11
12
+
−
MS
MEMO
BAND
AUTO/MANU MODE
*D358
D351
*D359
D352
D364
*D360
D361
D353
D357
D363
D354
D355
D365
D356
D301
D302
D303
Q301
IC301
FL301
CP301
CP302
CP303
CP305
CP306
CP307
CF301
CN301
CN302
C302
C303
C304
C305
C306
C307
C308
C309
C310
C312
C313
C314
C315
C316
C317
R301
R302
R303
R304
R305
R306
R307
R308
R309
R310
L301
L302
L303
L304
11

Note on Schematic Diagram: tuner section

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $^1/_4$W or less unless otherwise specified.
- △ : internal component.
- ▭ : nonflammable resistor.
- ▬▬ : B+ bus.
- ▬ ▬ ▬ : B− bus.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.

  no mark : FM
  ( ) : MW
  〈 〉 : LW
- Voltages are taken with a VOM (50 kΩ/V).
  Voltage variations may be noted due to normal production tolerances.
- WG: West Germany Model
  IT: Italian Model

Note on Mounting Diagram:

- ○—— : parts extracted from the component side.

	AEP WG UK	IT
D358 A	○	○
D359 B	×	○
D360 C	×	○

- WG: West Germany Model
  IT: Italian Model

- **Semiconductor Location**

Ref. No.	Location
D301	C-11
D302	C-11
D303	C-13
D351	B-6
D352	C-6
D353	C-6
D354	C-6
D355	C-6
D356	C-6
D357	C-6
D358	B-6
D359	B-6
D360	C-6
D361	C-5
D363	C-6
D364	C-5
D365	C-5
IC301	C-8

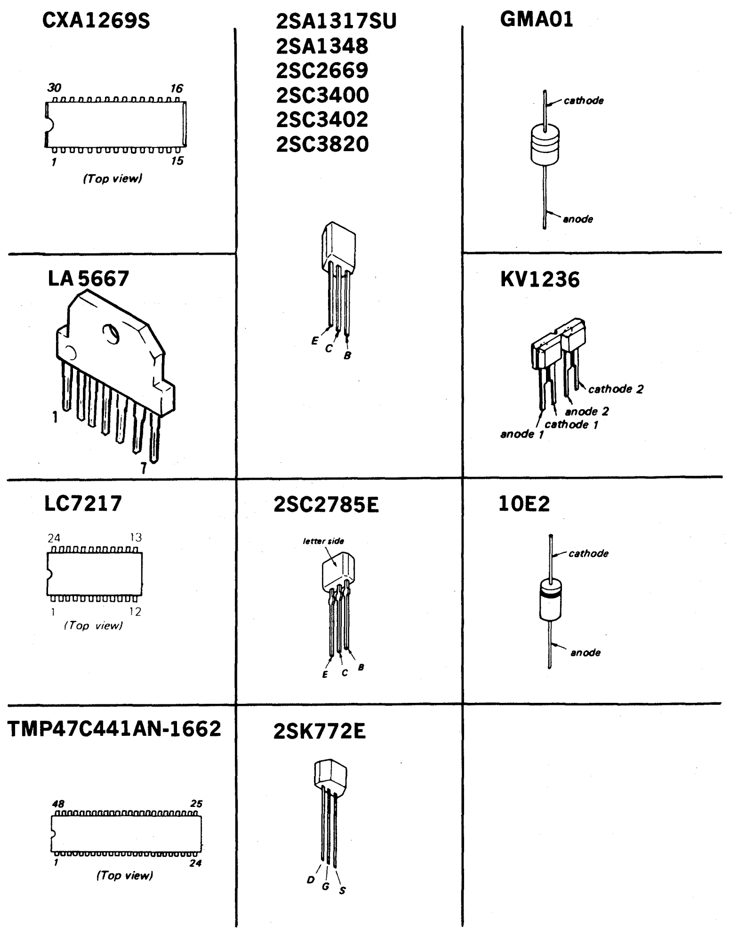
Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $^1/_4$W or less unless otherwise specified.
- Switch

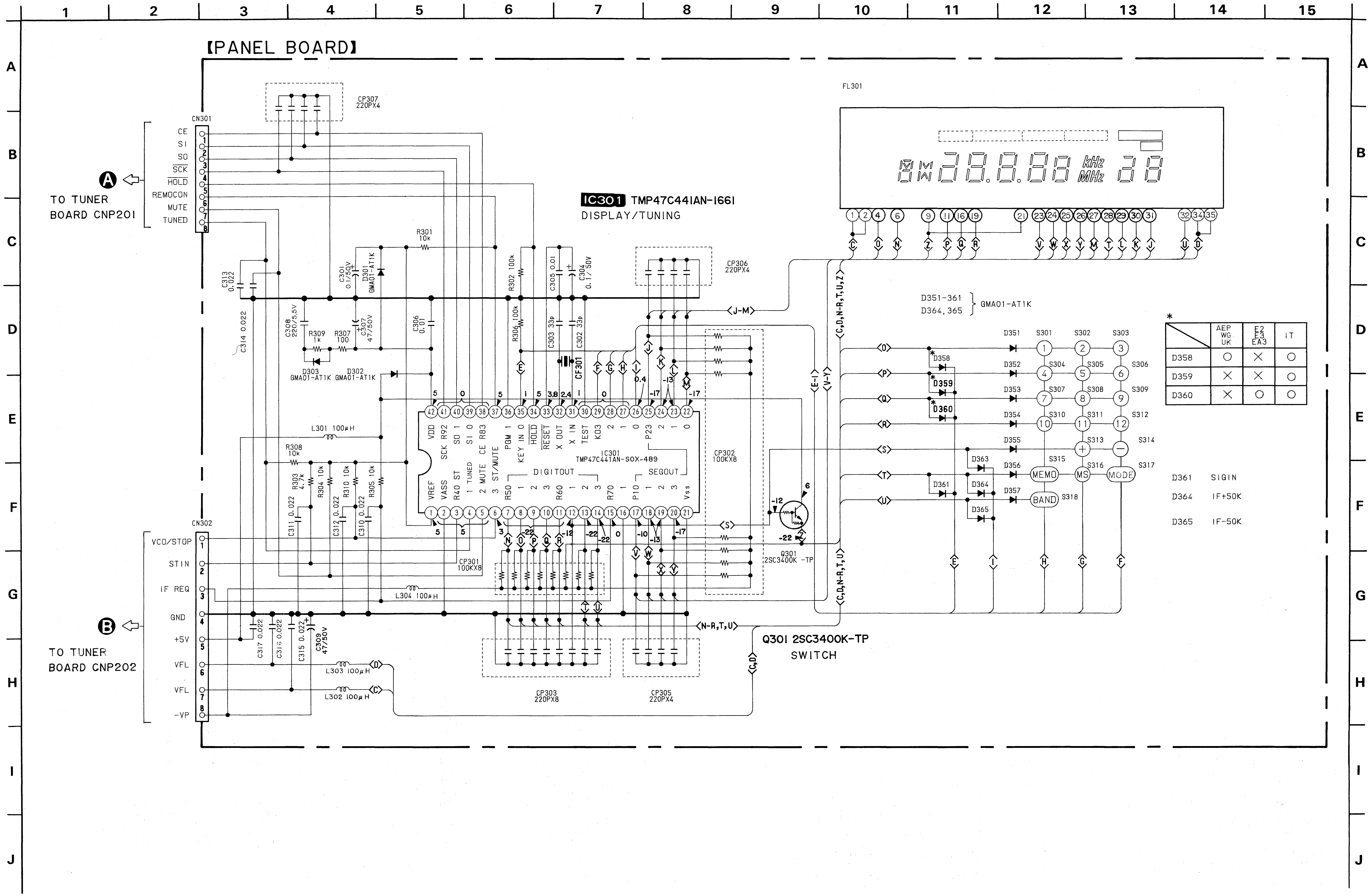
Ref. No.	Switch	Position
S301	PRESET STATIONS 1	OFF
S302	PRESET STATIONS 2	OFF
S303	PRESET STATIONS 3	OFF
S304	PRESET STATIONS 4	OFF
S305	PRESET STATIONS 5	OFF
S306	PRESET STATIONS 6	OFF
S307	PRESET STATIONS 7	OFF
S308	PRESET STATIONS 9	OFF
S309	PRESET STATIONS 9	OFF
S310	PRESET STATIONS 10	OFF
S311	PRESET STATIONS 11	OFF
S312	PRESET STATIONS 12	OFF
S313	TUNING (+)	OFF
S314	TUNING (−)	OFF
S315	MEMORY	OFF
S316	MEMORY SCAN	OFF
S317	AUTO/MANUAL MODE	OFF
S318	BAND	OFF

- WG: West Germany Model
  IT: Italian Model
- Voltages are taken with a VOM (50 kΩ/V).
  Voltage variations may be noted due to normal production tolerances.

- **Semiconductor Lead Layouts**


CXA1269S
30
16
1
15
(Top view)
2SA1317SU
2SA1348
2SC2669
2SC3400
2SC3402
2SC3820
E
C
B
GMA01
cathode
anode
LA5667
1
7
KV1236
cathode 2
anode 2
cathode 1
anode 1
LC7217
24
13
1
12
(Top view)
2SC2785E
letter side
E
C
B
10E2
cathode
anode
TMP47C441AN-1662
48
25
1
24
(Top view)
2SK772E
D
G
S

3-4. SCHEMATIC DIAGRAM—Panel section—


1
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9
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11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
【PANEL BOARD】
CP307
220PX4
CN301
CE
SI
SO
SCK
HOLD
REMOCON
MUTE
TUNED
A
TO TUNER
BOARD CNP201
IC301 TMP47C441AN-1661
DISPLAY/TUNING
FL301
kHz
MHz
R301
10k
C301
0.1/50V
D301
GMA01-A1K
R302 100k
C305 0.01
C304
0.1/50V
CP306
220PX4
C313
0.022
C314 0.022
C308
220/5.5V
R309
1k
R307
100
C307
47/50V
C306
0.01
R306 100k
C303 33p
C302 33p
CF301
<J-M>
D303
GMA01-AT1K
D302
GMA01-AT1K
L301 100μH
R308
10k
R303
4.7k
R304 10k
R310 10k
R305 10k
VDD
SCK R92
SO 1
SI 0
CE R83
PGM 1
KEY IN 0
HOLD
RESET
X OUT
X IN
TEST
K03
P23
IC301
TMP47C441AN-SOX-489
VREF
VASS
R40 ST
1 TUNED
2 MUTE
3 ST/MUTE
DIGITOUT
R50
R60
R70
SEGOUT
P10
Vss
CP302
100KX8
C311 0.022
C312 0.022
C310 0.022
CN302
VCO/STOP
STIN
IF REQ
GND
+5V
VFL
VFL
-VP
B
TO TUNER
BOARD CNP202
CP301
100KX8
L304 100μH
C317 0.022
C316 0.022
C315 0.022
C309
47/50V
L303 100μH
L302 100μH
CP303
220PX8
CP305
220PX4
<N-R,T,U>
Q301
2SC3400K -TP
Q301 2SC3400K-TP
SWITCH
<C,D,N-R,T,U,Z>
<C,D,N-R,T,U>
<E-I>
<V-Y>
<C,D>
D351-361
D364, 365
GMA01-AT1K
D351
D352
D353
D354
D355
D356
D357
D358
D359
D360
D361
D363
D364
D365
S301
S302
S303
S304
S305
S306
S307
S308
S309
S310
S311
S312
S313
S314
S315
S316
S317
S318
MEMO
MS
MODE
BAND
D361 SIGIN
D364 IF+50K
D365 IF-50K

*

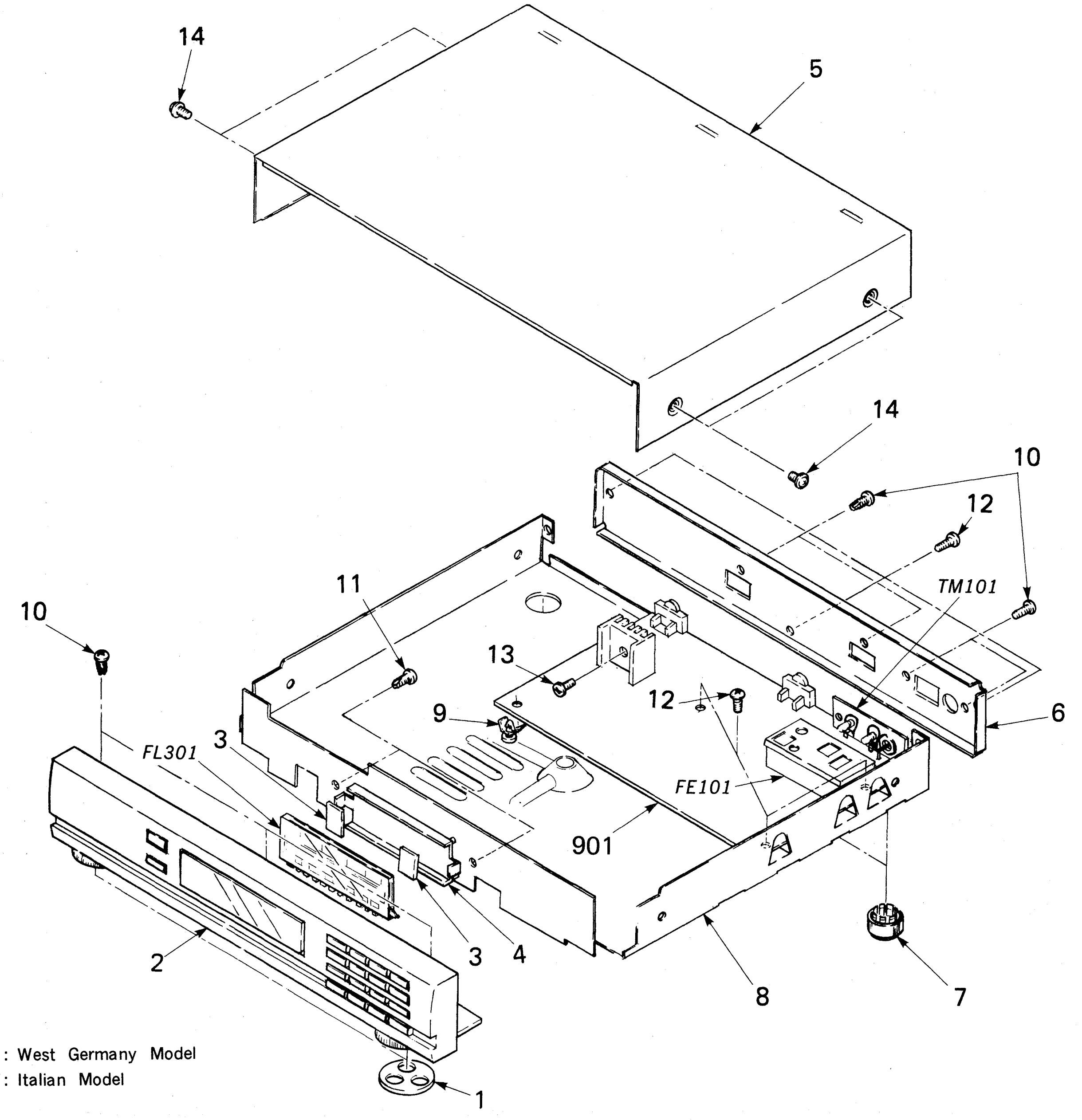
	AEP WG UK	E2 E3 EA3	IT
D358	○	×	○
D359	×	×	○
D360	×	○	○

SECTION 4
EXPLODED VIEW

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts Example:

  (RED) . . . KNOB, BALANCE (WHITE)
  ↑ ↑
  Cabinet's Color Parts Color



WG: West Germany Model
IT: Italian Model

Ref.No	Part No.	Description	Remark
1	4-921-906-01	FELT	
2	X-4924-516-1	(AEP,UK, IT) ....PANEL ASSY, FRONT	
	X-4924-518-1	(WG) ....PANEL ASSY, FRONT	
3	★4-921-941-11	CUSHION (FL)	
4	★4-923-103-01	HOLDER, FL TUBE	
5	4-924-514-31	(AEP, UK, IT) ....CASE	
	4-924-514-21	(WG) ....CASE	
6	★4-924-502-01	(AEP, UK, IT) ....PANEL, BACK	
	★4-924-502-11	(WG) ....PANEL, BACK	
7	X-4921-901-1	FOOT ASSY	
8	★4-921-903-41	CHASSIS	

Ref.No	Part No.	Description	Remark
9	★4-835-627-00	FASTENER, (A)	
10	7-685-646-79	SCREW +BVTP 3×8 TYPE N-S	
11	7-685-134-11	SCREW +PTP 2.6×8	
12	7-682-548-04	SCREW +BVTT 3×8 (S)	
13	7-685-647-79	SCREW BVTP 3×10 TYPE2 IT-3	
14	3-704-366-01	SCREW (CASE) (M3X8)	
901	★A-4351-635-A	(AEP, UK) ....MOUNTED PCB, TUNER	
	★A-4351-636-A	(WG, IT) ....MOUNTED PCB, TUNER	
FE101	1-463-963-11	FRONT END (FM 3 GANG)	
FL301	1-519-453-11	INDICATOR TUBE, FLUORESCENT	
TM101	★1-537-138-21	TERMINAL BOARD (ANT)	

SECTION 5
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

WG: West Germany Model
IT: Italian Model

Ref.No	Part No.	Description			Remark
901	★A-4351-635-A	(AEP, UK) ....MOUNTED PCB, TUNER			
901	★A-4351-636-A	(WG, IT) ....MOUNTED PCB, TUNER			
		CAPACITOR			
C101	1-102-074-00	CERAMIC	0.001MF	10%	50V
C102	1-102-074-00	CERAMIC	0.001MF	10%	50V
C103	1-124-477-11	ELECT	47MF	20%	25V
C104	1-101-005-00	CERAMIC	0.022MF		50V
C105	1-101-005-00	CERAMIC	0.022MF		50V
C106	1-101-005-00	CERAMIC	0.022MF		50V
C107	1-101-005-00	(WG, IT)....CERAMIC	0.022MF		50V
C108	1-101-005-00	(WG, IT)....CERAMIC	0.022MF		50V
C109	1-101-006-00	CERAMIC	0.047MF		50V
C110	1-124-477-11	ELECT	47MF	20%	25V
C111	1-101-005-00	CERAMIC	0.022MF		50V
C112	1-123-382-00	ELECT	3.3MF	20%	50V
C113	1-101-004-00	CERAMIC	0.01MF		50V
C117	1-130-483-00	MYLAR	0.01MF	5%	50V
C118	1-102-962-00	CERAMIC	30PF	5%	50V
C119	1-123-875-11	ELECT	10MF	20%	50V
C120	1-124-902-00	ELECT	0.47MF	20%	50V
C121	1-124-499-11	ELECT	1MF	20%	50V
C122	1-124-252-00	ELECT	0.33MF	20%	50V
C123	1-101-004-00	CERAMIC	0.01MF		50V
C124	1-101-004-00	CERAMIC	0.01MF		50V
C125	1-123-382-00	ELECT	3.3MF	20%	50V
C126	1-123-382-00	ELECT	3.3MF	20%	50V
C127	1-124-463-00	ELECT	0.1MF	20%	50V
C128	1-101-004-00	CERAMIC	0.01MF		50V
C129	1-101-005-00	CERAMIC	0.022MF		50V
C130	1-124-927-11	ELECT	4.7MF	20%	50V
C131	1-101-006-00	CERAMIC	0.047MF		50V
C132	1-124-444-00	ELECT	220MF	20%	10V
C133	1-101-006-00	CERAMIC	0.047MF		50V
C134	1-101-004-00	CERAMIC	0.01MF		50V
C136	1-123-382-00	(WG, IT)....ELECT	3.3MF	20%	50V
C138	1-123-382-00	(WG, IT)....ELECT	3.3MF	20%	50V
C139	1-162-283-31	(WG, IT)....CERAMIC	120PF	10%	50V
C140	1-124-463-00	ELECT	0.1MF	20%	50V
C140	1-124-902-00	(WG, IT)....ELECT	0.47MF	20%	50V
C141	1-124-478-11	ELECT	100MF	20%	25V
C142	1-101-005-00	CERAMIC	0.022MF		50V
C143	1-101-005-00	CERAMIC	0.022MF		50V
C181	1-101-005-00	CERAMIC	0.022MF		50V
C182	1-101-005-00	CERAMIC	0.022MF		50V
C184	1-101-005-00	CERAMIC	0.022MF		50V
C185	1-102-120-00	CERAMIC	0.0018MF	10%	50V
C186	1-161-041-00	CERAMIC	0.0015MF	10%	25V
C187	1-101-005-00	CERAMIC	0.022MF		50V
C201	1-101-884-00	CERAMIC	56PF	5%	50V
C202	1-101-880-00	CERAMIC	47PF	5%	50V
C203	1-101-004-00	CERAMIC	0.01MF		50V

Ref.No	Part No.	Description			Remark
C204	1-101-004-00	CERAMIC	0.01MF		50V
C205	1-124-477-11	ELECT	47MF	20%	25V
C206	1-101-005-00	CERAMIC	0.022MF		50V
C207	1-101-005-00	CERAMIC	0.022MF		50V
C208	1-124-477-11	ELECT	47MF	20%	25V
C209	1-136-173-00	FILM	0.47MF	5%	50V
C210	1-124-463-00	ELECT	0.1MF	20%	50V
C211	1-124-925-11	ELECT	2.2MF	20%	50V
C212	1-124-463-00	ELECT	0.1MF	20%	50V
C213	1-101-005-00	CERAMIC	0.022MF		50V
C214	1-101-004-00	CERAMIC	0.01MF		50V
C215	1-102-973-00	CERAMIC	100PF	5%	50V
C251	1-101-004-00	CERAMIC	0.01MF		50V
C252	1-126-105-11	ELECT	1000MF	20%	35V
C253	1-124-902-00	ELECT	0.47MF	20%	50V
C254	1-124-444-00	ELECT	220MF	20%	10V
C255	1-124-477-11	ELECT	47MF	20%	25V
C256	1-101-005-00	CERAMIC	0.022MF		50V
C257	1-101-005-00	CERAMIC	0.022MF		50V
C258	1-136-165-00	FILM	0.1MF	5%	50V
C301	1-124-463-00	ELECT	0.1MF	20%	50V
C302	1-162-056-00	CERAMIC	33PF	5%	50V
C303	1-162-056-00	CERAMIC	33PF	5%	50V
C304	1-124-463-00	ELECT	0.1MF	20%	50V
C305	1-161-379-00	CERAMIC	0.01MF	30%	16V
C306	1-161-379-00	CERAMIC	0.01MF	30%	16V
C307	1-124-910-11	ELECT	47MF	20%	50V
C308	1-125-486-11		220MF		5.5V
C309	1-124-910-11	ELECT	47MF	20%	50V
C310	1-101-005-00	CERAMIC	0.022MF		50V
C311	1-101-005-00	CERAMIC	0.022MF		50V
C312	1-101-005-00	CERAMIC	0.022MF		50V
C313	1-101-005-00	CERAMIC	0.022MF		50V
C314	1-101-005-00	CERAMIC	0.022MF		50V
C315	1-101-005-00	CERAMIC	0.022MF		50V
C316	1-101-005-00	CERAMIC	0.022MF		50V
C317	1-101-005-00	CERAMIC	0.022MF		50V
C507	1-101-004-00	CERAMIC	0.01MF		50V
C508	1-101-004-00	CERAMIC	0.01MF		50V
C509	1-101-004-00	CERAMIC	0.01MF		50V
C510	1-101-004-00	CERAMIC	0.01MF		50V
CF101	1-567-389-11	FILTER, CERAMIC			
CF102	1-567-389-11	FILTER, CERAMIC			
CF103	1-567-389-11	(WG, IT)....FILER, CERAMIC			
CF104	1-577-075-11	OSCILLATOR, CERAMIC			
CF301	1-577-029-11	VIBRATOR, CERAMIC			
CNP101	★1-566-856-11	SOCKET, CONNECTOR 5P			
CNP201	★1-566-168-11	HOUSING, CONNECTOR 8P			
CNP202	★1-566-168-11	HOUSING, CONNECTOR 8P			
CNP251	1-566-857-11	SOCKET, CONNECTOR 7P			
CNP301	★1-566-168-11	HOUSING, CONNECTOR 8P			

Ref.No	Part No.	Description	Remark
CNP302	*1-566-168-11	HOUSING, CONNECTOR 8P	
CP201	1-233-125-11	COMPOSITION CIRCUIT BLOCK	
CP301	1-233-140-11	COMPOSITION CIRCUIT BLOCK	
CP302	1-233-140-11	COMPOSITION CIRCUIT BLOCK	
CP303	1-233-151-	COMPOSITION CIRCUIT BLOCK	
CP305	1-233-150-	COMPOSITION CIRCUIT BLOCK	
CP306	1-233-150-	COMPOSITION CIRCUIT BLOCK	
CP307	1-233-150-	COMPOSITION CIRCUIT BLOCK	
D102	1-806-937-11	DIODE GMA01	
D251	8-719-200-02	DIODE 10E2	
D252	8-719-200-02	DIODE 10E2	
D253	8-719-200-02	DIODE 10E2	
D254	8-719-200-02	DIODE 10E2	
D301	1-806-937-11	DIODE GMA01	
D302	1-806-937-11	DIODE GMA01	
D303	1-806-937-11	DIODE GMA01	
D351	1-806-937-11	DIODE GMA01	
D352	1-806-937-11	DIODE GMA01	
D353	1-806-937-11	DIODE GMA01	
D354	1-806-937-11	DIODE GMA01	
D355	1-806-937-11	DIODE GMA01	
D356	1-806-937-11	DIODE GMA01	
D357	1-806-937-11	DIODE GMA01	
D358	1-806-937-11	DIODE GMA01	
D359	1-806-937-11	(IT)....DIODE GMA01	
D360	1-806-937-11	(IT)....DIODE GMA01	
D361	1-806-937-11	DIODE GMA01	
D363	1-806-937-11	DIODE GMA01	
D364	1-806-937-11	DIODE GMA01	
D365	1-806-937-11	DIODE GMA01	
FE101	1-463-963-11	FRONT END (FM 3 GANG)	
FE181	1-235-936-11	ENCAPSULATED COMPONENT	
FE182	1-236-178-11	RF BLOCK, LW	
FL301	1-519-453-11	INDICATOR TUBE, FLUORESCENT	
IC101	8-759-805-50	IC CXA1269S	
IC201	8-759-820-10	IC LC7217	
IC251	8-759-820-09	IC LA5667	
IC301	8-759-230-49	IC TMP47C441AN-1662	
L101	1-410-564-41	INDUCTOR	
L102	1-410-564-41	(WG, IT)....INDUCTOR 100UH	
L103	1-408-920-00	INDUCTOR	
L181	1-410-568-21	INDUCTOR	
L301	1-410-564-21	INDUCTOR	
L302	1-410-564-21	INDUCTOR	
L303	1-410-564-21	INDUCTOR	
L304	1-410-564-21	INDUCTOR	
Q101	8-729-266-93	TRANSISTOR 2SC2669	
Q102	8-729-266-93	TRANSISTOR 2SC2669	
Q103	8-729-266-93	(WG, IT)....TRANSISTOR 2SC2669	
Q104	8-729-266-93	(WG, IT)....TRANSISTOR 2SC2669	
Q105	8-729-178-55	TRANSISTOR 2SC2785-E	
Q106	8-729-178-55	TRANSISTOR 2SC2785-E	
Q107	8-729-178-55	TRANSISTOR 2SC2785-E	
Q108	9-986-159-01	TRANSISTOR 2SA1348	
Q109	8-729-806-28	TRANSISTOR 2SC3402	
Q110	8-729-806-28	TRANSISTOR 2SC3402	
Q181	8-729-806-28	TRANSISTOR 2SC3402	
Q182	8-729-820-10	TRANSISTOR 2SA1317-SU	
Q183	8-729-178-55	TRANSISTOR 2SC2785-E	
Q184	8-729-806-28	TRANSISTOR 2SC3402	
Q185	8-729-806-28	TRANSISTOR 2SC3402	
Q186	8-729-806-28	TRANSISTOR 2SC3402	

Ref.No	Part No.	Description	Remark
Q201	8-729-820-12	TRANSISTOR 2SK772-E	
Q202	8-729-820-13	TRANSISTOR 2SC3820	
Q203	8-729-820-12	TRANSISTOR 2SK772-E	
Q204	8-729-820-13	TRANSISTOR 2SC3820	
Q251	8-729-820-10	TRANSISTOR 2SA1317	
Q301	8-729-806-34	TRANSISTOR 2SC3400	

RESISTOR

Ref.No	Part No.	Description				Remark
R101	⚠1-247-704-11	CARBON	220	5%	1/4W	F
R103	1-249-406-11	CARBON	120	5%	1/4W	
R105	1-249-432-11	CARBON	18K	5%	1/4W	
R106	1-249-411-11	CARBON	330	5%	1/4W	
R107	1-249-414-11	CARBON	560	5%	1/4W	
R108	1-249-411-11	CARBON	330	5%	1/4W	
R109	1-249-434-11	CARBON	27K	5%	1/4W	
R110	1-249-432-11	(WG,IT)....CARBON	18K	5%	1/4W	
R111	1-249-411-11	(WG,IT)....CARBON	330	5%	1/4W	
R112	1-249-416-11	(WG,IT)....CARBON	820	5%	1/4W	
R113	1-249-411-11	(WG,IT)....CARBON	330	5%	1/4W	
R114	1-249-434-11	(WG,IT)....CARBON	27K	5%	1/4W	
R115	⚠1-247-700-11	CARBON	100	5%	1/4W	F
R116	1-249-432-11	CARBON	18K	5%	1/4W	
R117	1-249-424-11	CARBON	3.9K	5%	1/4W	
R119	1-215-438-00	CARBON	5.1K	5%	1/4W	
R120	1-215-438-00	CARBON	5.1K	5%	1/4W	
R121	1-215-438-00	CARBON	5.1K	5%	1/4W	
R122	1-249-417-11	CARBON	1K	5%	1/4W	
R123	1-249-437-11	CARBON	47K	5%	1/4W	
R124	1-249-417-11	CARBON	1K	5%	1/4W	
R125	1-249-426-11	CARBON	5.6K	5%	1/4W	
R130	1-249-417-11	CARBON	1K	5%	1/4W	
R131	1-249-417-11	CARBON	1K	5%	1/4W	
R132	1-249-429-11	CARBON	10K	5%	1/4W	
R133	1-249-429-11	CARBON	10K	5%	1/4W	
R149	1-249-747-	CARBON	1.5M	5%	1/4W	
R181	1-249-441-11	CARBON	100K	5%	1/4W	
R182	1-249-437-11	CARBON	47K	5%	1/4W	
R185	1-249-433-11	CARBON	22K	5%	1/4W	
R186	1-249-437-11	CARBON	47K	5%	1/4W	
R187	1-215-493-00	CARBON	1M	5%	1/4W	
R189	1-249-433-11	CARBON	22K	5%	1/4W	
R190	1-249-432-11	CARBON	18K	5%	1/4W	
R191	1-249-433-11	CARBON	22K	5%	1/4W	
R193	1-249-431-11	CARBON	15K	5%	1/4W	
R194	1-249-401-11	CARBON	47	5%	1/4W	
R201	1-249-417-11	CARBON	1K	5%	1/4W	
R202	1-249-417-11	CARBON	1K	5%	1/4W	
R203	1-249-417-11	CARBON	1K	5%	1/4W	
R204	1-249-417-11	CARBON	1K	5%	1/4W	
R205	1-249-425-11	CARBON	4.7K	5%	1/4W	
R207	⚠1-247-696-11	CARBON	47	5%	1/4W	F
R208	⚠1-247-700-11	CARBON	100	5%	1/4W	F
R209	1-249-425-11	CARBON	4.7K	5%	1/4W	
R210	1-249-410-11	CARBON	270	5%	1/4W	
R211	1-249-418-11	CARBON	1.2K	5%	1/4W	
R212	1-249-414-11	CARBON	560	5%	1/4W	
R213	1-249-433-11	CARBON	22K	5%	1/4W	
R214	1-249-421-11	CARBON	2.2K	5%	1/4W	
R215	1-249-425-11	CARBON	4.7K	5%	1/4W	
R216	1-249-405-11	CARBON	100	5%	1/4W	
R217	1-249-423-11	CARBON	3.3K	5%	1/4W	
R218	1-249-410-11	CARBON	270	5%	1/4W	
R219	1-249-418-11	CARBON	1.2K	5%	1/4W	
R220	1-249-414-11	CARBON	560	5%	1/4W	
R221	1-249-425-11	CARBON	4.7K	5%	1/4W	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref.No	Part No.	Description			Remark
R222	1-249-421-11	CARBON	2.2K	5%	1/4W
R223	1-249-425-11	CARBON	4.7K	5%	1/4W
R224	1-249-405-11	CARBON	100	5%	1/4W
R225	1-249-429-11	CARBON	10K	5%	1/4W
R226	1-249-429-11	CARBON	10K	5%	1/4W
R227	1-249-429-11	CARBON	10K	5%	1/4W
R228	1-249-429-11	CARBON	10K	5%	1/4W
R229	1-249-425-11	CARBON	4.7K	5%	1/4W
R251	1-249-429-11	CARBON	10K	5%	1/4W
R252	1-249-405-11	CARBON	100	5%	1/4W
R253	1-249-429-11	CARBON	10K	5%	1/4W
R254	1-249-413-11	CARBON	470	5%	1/4W
R256	1-249-429-11	CARBON	10K	5%	1/4W
R257	1-249-441-11	CARBON	100K	5%	1/4W
R258	1-249-393-11	CARBON	10	5%	1/4W
R301	1-249-429-11	CARBON	10K	5%	1/4W
R302	1-249-441-11	CARBON	100K	5%	1/4W
R303	1-249-425-11	CARBON	4.7K	5%	1/4W
R304	1-249-429-11	CARBON	10K	5%	1/4W
R305	1-249-429-11	CARBON	10K	5%	1/4W
R306	1-249-441-11	CARBON	100K	5%	1/4W
R307	1-249-405-11	CARBON	100	5%	1/4W
R308	1-249-429-11	CARBON	10K	5%	1/4W
R309	1-249-417-11	CARBON	1K	5%	1/4W
R310	1-249-429-11	CARBON	10K	5%	1/4W
RV101	1-228-993-00	RES, ADJ, CARBON 4.7K			
RV102	1-228-995-00	RES, ADJ, CARBON 22K			
RV103	1-228-995-00	RES, ADJ, CARBON 22K			
S301	1-554-303-21	SWITCH, KEY BOARD (1)			
S302	1-554-303-21	SWITCH, KEY BOARD (2)			
S303	1-554-303-21	SWITCH, KEY BOARD (3)			
S304	1-554-303-21	SWITCH, KEY BOARD (4)			
S305	1-554-303-21	SWITCH, KEY BOARD (5)			
S306	1-554-303-21	SWITCH, KEY BOARD (6)			
S307	1-554-303-21	SWITCH, KEY BOARD (7)			
S308	1-554-303-21	SWITCH, KEY BOARD (8)			
S309	1-554-303-21	SWITCH, KEY BOARD (9)			
S310	1-554-303-21	SWITCH, KEY BOARD (10)			
S311	1-554-303-21	SWITCH, KEY BOARD (11)			
S312	1-554-303-21	SWITCH, KEY BOARD (12)			
S313	1-554-303-21	SWITCH, KEY BOARD (+)			
S314	1-554-303-21	SWITCH, KEY BOARD (−)			
S315	1-554-303-21	SWITCH, KEY BOARD (MEMO)			
S316	1-554-303-21	SWITCH, KEY BOARD (MS)			
S317	1-554-303-21	SWITCH, KEY BOARD (AUTO/MANU, MODE)			
S318	1-554-303-21	SWITCH, KEY BOARD (BAND)			
T251	1-404-788-11	TRANSFORMER, DISCRIMINATOR(FM)			
T252	1-404-713-11	TRANSFORMER, IF			
TM101	*1-537-138-21	TERMINAL BOARD (ANT)			
TP101	*1-560-060-00	PIN, CONNECTOR 2P			
XT201	1-567-767-11	VIBRATOR, CRYSTAL			

ACCESSORIES AND PACKING MATERIALS

Part No.	Description
3-312-970-00	SHEET PROTECTION

English
88B0455-1
Printed in Japan
© 1988. 2

9-953-118-11

Sony Corporation
Audio Group

Published by A/V Engineering Service Dept.

TA-DS70

SERVICE MANUAL

AEP Model
UK Model

This set is the amplifier Section in XO-70/D70CD.

SPECIFICATIONS

Amplifier

Continuous RMS power output (Continental European model)
55 W + 55 W (at 1kHz, 5% T.H.D.)

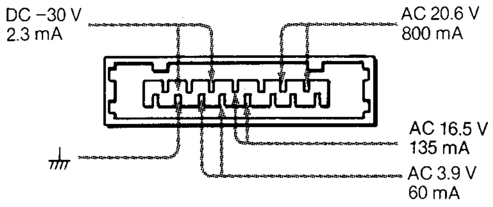
Inputs

	Jack type	Sensitivity	Impedance
PHONO IN	Phono	2 mV	50 kohms
VIDEO/DAT IN	Phono	150 mV	50 kohms
CD IN	Phono	150 mV	50 kohms
MIC	Phone	2 mV	50 kohms

Outputs

	Jack type	Voltage	Impedance
VIDEO/DAT	Phono	150 mV	470 ohms
SURROUND SPEAKER	Phono	Accepts speakers of 6 ohms to 16 ohms.	
HEADPHONES	Stereo phone	Accepts headphones of 8 ohms or more.	

SYSTEM CONTROL connector
SYSTEM CONTROL 2: 15-pin



DOL	+6dB (100 Hz)
Dimensions	Approx. 355 × 117.1 × 330 mm (w/h/d) (14 × 4⁵/₈ × 13 inches)
Weight	Approx. 6.4 kg (14 lb 2 oz)

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

MICROFILM

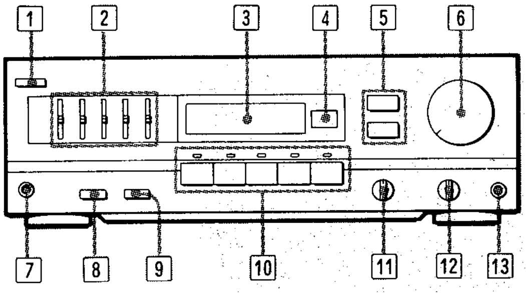
INTEGRATED STEREO AMPLIFIER

SONY®

SECTION 1
GENERAL

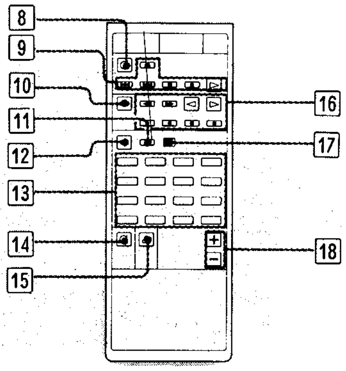
1-1. PARTS IDENTIFICATION

Amplifier



1 **POWER switch**
2 **5 BAND GRAPHIC EQUALIZER controls**
3 **5 BAND SPECTRUM ANALYZER**
4 **■ Remote sensor**
5 **EQUALIZER RECORDING button and EQ REC (equalizer recording) indicator**
6 **VOLUME control**
7 **HEADPHONES jack** (stereo phone jack)
8 **SURROUND button**
9 **DOL (dynamic optimum loudness) button**
10 **Function (VIDEO/DAT, TAPE, CD, TUNER and PHONO) selectors and indicators**
11 **BALANCE control**
12 **MIC (microphone) LEVEL control**
13 **MIC (microphone) jack** (phone jack)

Remote Commander



The function of the CD player operation buttons, TAPE deck operation buttons and TUNER buttons are the same as those on each unit.

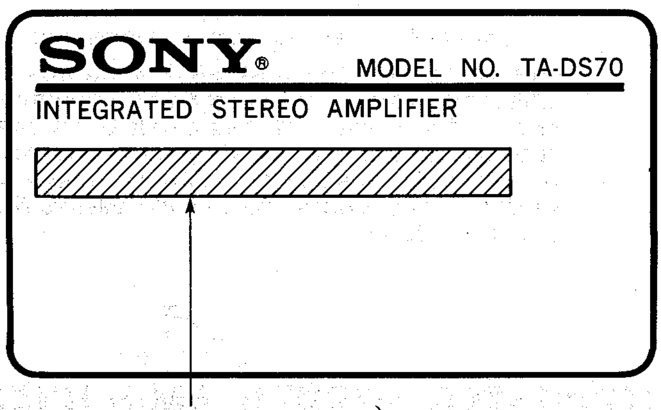
8 **CD button**
9 **CD player operation buttons**
  ⏏ OPEN/CLOSE
  ⏮, ⏭ AMS (Automatic Music Sensor)
  ❚❚ Pause, ■ Stop, ▷ Play
10 **TAPE button**
11 **BAND selector**
12 **TUNER button**
13 **Numeric buttons (1 to 12 for tuner/1 to 16 for CD player)**
14 **PHONO button**
15 **VIDEO/DAT (digital audio tape) button**
16 **TAPE deck operation buttons**

Note on TAPE deck operation buttons

When cassettes are loaded in both decks, the tape deck operation buttons can operate only deck B.
When one cassette is loaded, these buttons can operate only the deck with the cassette.

17 **TUNER/CD selector**
TUNER: Numeric buttons (1–12) can be used for preset tuning on the tuner.
CD: Numeric buttons (1–16) can be used for direct music selection on the CD player.
18 **VOLUME +/– buttons**

1-2. MODEL IDENTIFICATION
(Specification Label)

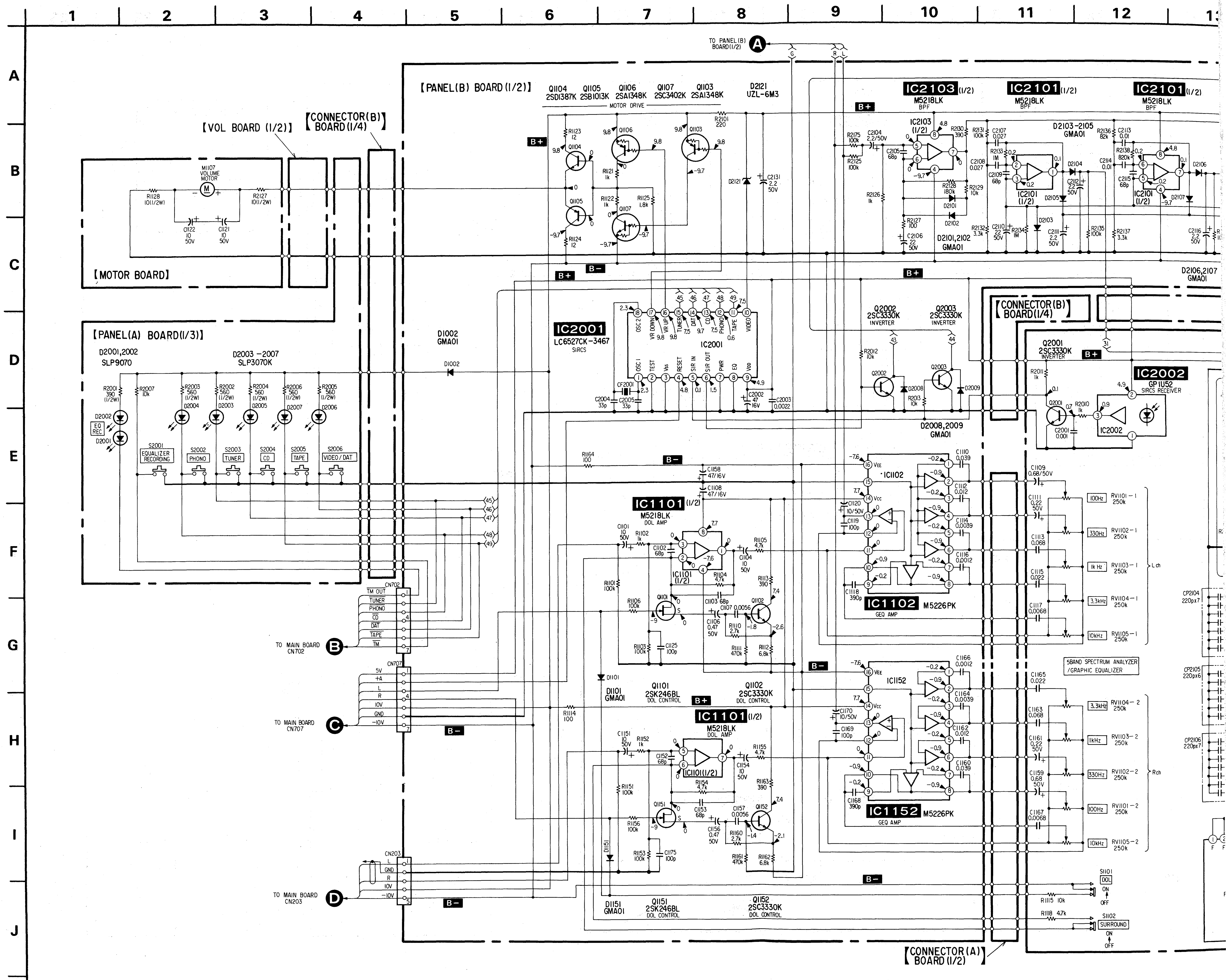


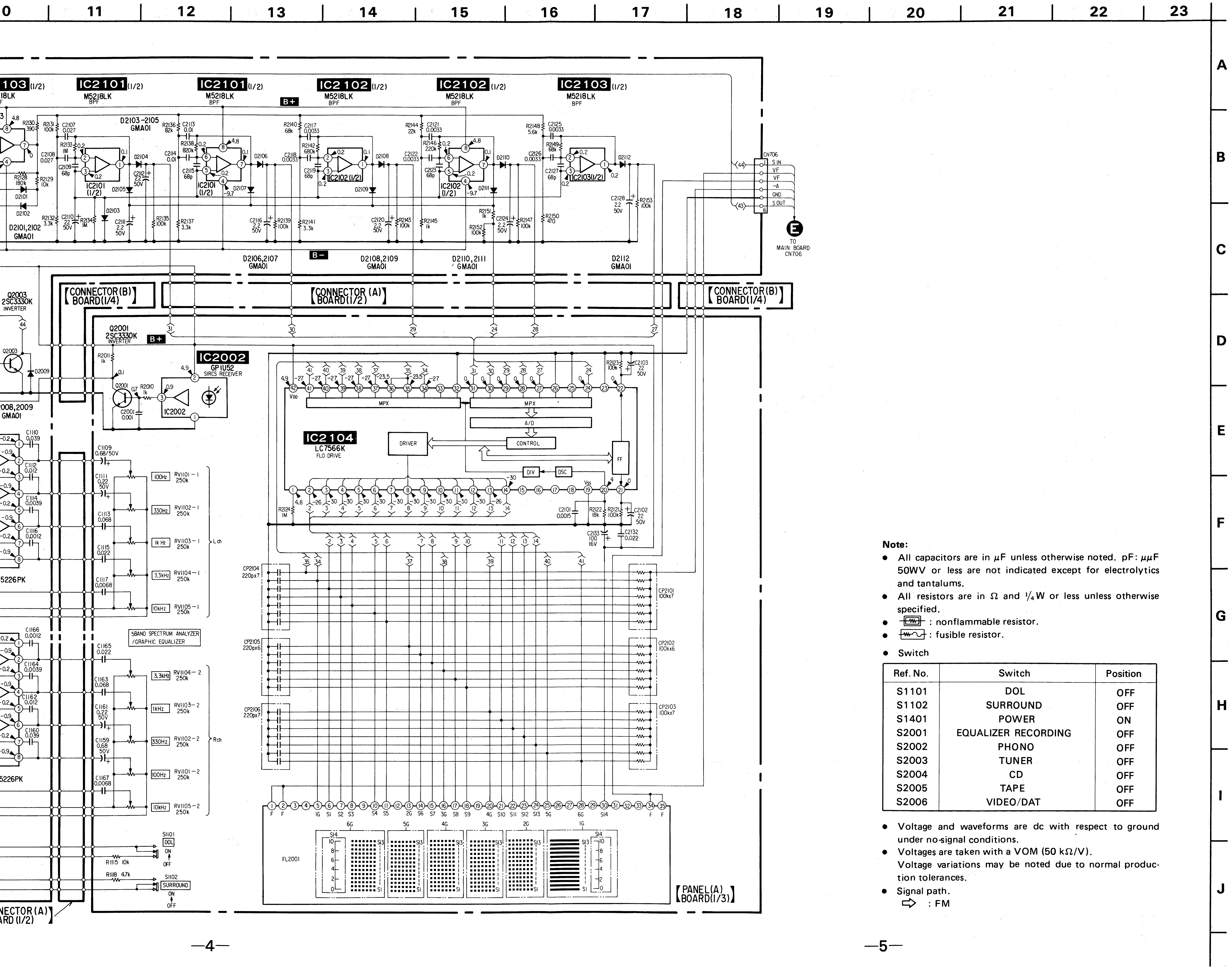
SONY® MODEL NO. TA-DS70
INTEGRATED STEREO AMPLIFIER

AEP MODEL
Itarian (IT) MODEL
West Germany (WG) MODEL
: AC 240V~50/60Hz 110W
UK MODEL : AC 240V~50/60Hz 240W

2-1. SCHEMATIC DIAGRAM
— DISPLAY SECTION —

SECTION 2
DIAGRAMS


1 2 3 4 5 6 7 8 9 10 11 12
A B C D E F G H I J
TO PANEL(B) BOARD(1/2)
A
【PANEL(B) BOARD(1/2)】
Q1104 2SD1387K
Q1105 2SB1013K
Q1106 2SA1348K
Q1107 2SC3402K
Q1103 2SA1348K
MOTOR DRIVE
D2121 UZL-6M3
IC2103 (1/2) M5218LK BPF
IC2101 (1/2) M5218LK BPF
IC2101 (1/2) M5218LK BPF
D2103-2105 GMA01
D2101,2102 GMA01
D2106,2107 GMA01
【VOL BOARD (1/2)】
【CONNECTOR(B) BOARD(1/4)】
M1107 VOLUME MOTOR
R1128 10(1/2W)
R1127 10(1/2W)
C1122 10 50V
C1121 10 50V
【MOTOR BOARD】
【PANEL(A) BOARD(1/3)】
D2001,2002 SLP9070
D2003-2007 SLP3070K
D1002 GMA01
EQ REC
S2001 EQUALIZER RECORDING
S2002 PHONO
S2003 TUNER
S2004 CD
S2005 TAPE
S2006 VIDEO/DAT
IC2001 LC6527CK-3467 SIRCS
OSC2 VR DOWN VR UP TUNER DAT CD PHONO TAPE VIDEO
OSC1 TEST Vss RESET SIR IN SIR OUT PWR EQ VDD
CF2001
Q2002 2SC3330K INVERTER
Q2003 2SC3330K INVERTER
D2008,2009 GMA01
【CONNECTOR(B) BOARD(1/4)】
Q2001 2SC3330K INVERTER
IC2002 GP1U52 SIRCS RECEIVER
IC1101 (1/2) M5218LK DOL AMP
IC1102 M5226PK GEQ AMP
IC1101 (1/2) M5218LK DOL AMP
IC1152 M5226PK GEQ AMP
Q1101 2SK246BL DOL CONTROL
Q1102 2SC3330K DOL CONTROL
Q1151 2SK246BL DOL CONTROL
Q1152 2SC3330K DOL CONTROL
D1101 GMA01
D1151 GMA01
CN702 TM OUT TUNER PHONO CD DAT TAPE TM
TO MAIN BOARD CN702
B
CN707 5V +4 L R 10V GND -10V
TO MAIN BOARD CN707
C
CN203 L GND R 10V -10V
TO MAIN BOARD CN203
D
B+
B−
100Hz RV1101-1 250k
330Hz RV1102-1 250k
1kHz RV1103-1 250k
3.3kHz RV1104-1 250k
10kHz RV1105-1 250k
Lch
5BAND SPECTRUM ANALYZER /GRAPHIC EQUALIZER
3.3kHz RV1104-2 250k
1kHz RV1103-2 250k
330Hz RV1102-2 250k
100Hz RV1101-2 250k
10kHz RV1105-2 250k
Rch
CP2104 220px7
CP2105 220px6
CP2106 220px7
S1101 DOL ON OFF
R1115 10k
R1118 4.7k
S1102 SURROUND ON OFF
【CONNECTOR(A) BOARD(1/2)】


0
11
12
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14
15
16
17
18
19
20
21
22
23
A
B
C
D
E
F
G
H
I
J
IC2101 (1/2) M5218LK BPF
IC2102 (1/2) M5218LK BPF
IC2103 (1/2) M5218LK BPF
D2103-2105 GMA01
D2101,2102 GMA01
D2106,2107 GMA01
D2108,2109 GMA01
D2110,2111 GMA01
D2112 GMA01
B+
B-
CN706
S IN
VF
VF
-A
GND
S OUT
E
TO MAIN BOARD CN706
CONNECTOR (B) BOARD (1/4)
CONNECTOR (A) BOARD (1/2)
Q2003 2SC3330K INVERTER
Q2001 2SC3330K INVERTER
IC2002 GP1U52 SIRCS RECEIVER
D2008,2009 GMA01
IC2104 LC7566K FLO DRIVE
MPX
A/D
DRIVER
CONTROL
FF
DIV
DSC
VDD
Vss
CP2104 220px7
CP2105 220px6
CP2106 220px7
CP2101 100kx7
CP2102 100kx6
CP2103 100kx7
5BAND SPECTRUM ANALYZER /GRAPHIC EQUALIZER
RV1101-1 250k 100Hz
RV1102-1 250k 330Hz
RV1103-1 250k 1kHz
RV1104-1 250k 3.3kHz
RV1105-1 250k 10kHz
L ch
RV1104-2 250k 3.3kHz
RV1103-2 250k 1kHz
RV1102-2 250k 330Hz
RV1101-2 250k 100Hz
RV1105-2 250k 10kHz
R ch
5226PK
S1101 DOL ON OFF
S1102 SURROUND ON OFF
R1115 10k
R1118 4.7k
FL2001
PANEL (A) BOARD (1/3)
CONNECTOR (A) BOARD (1/2)

Note:

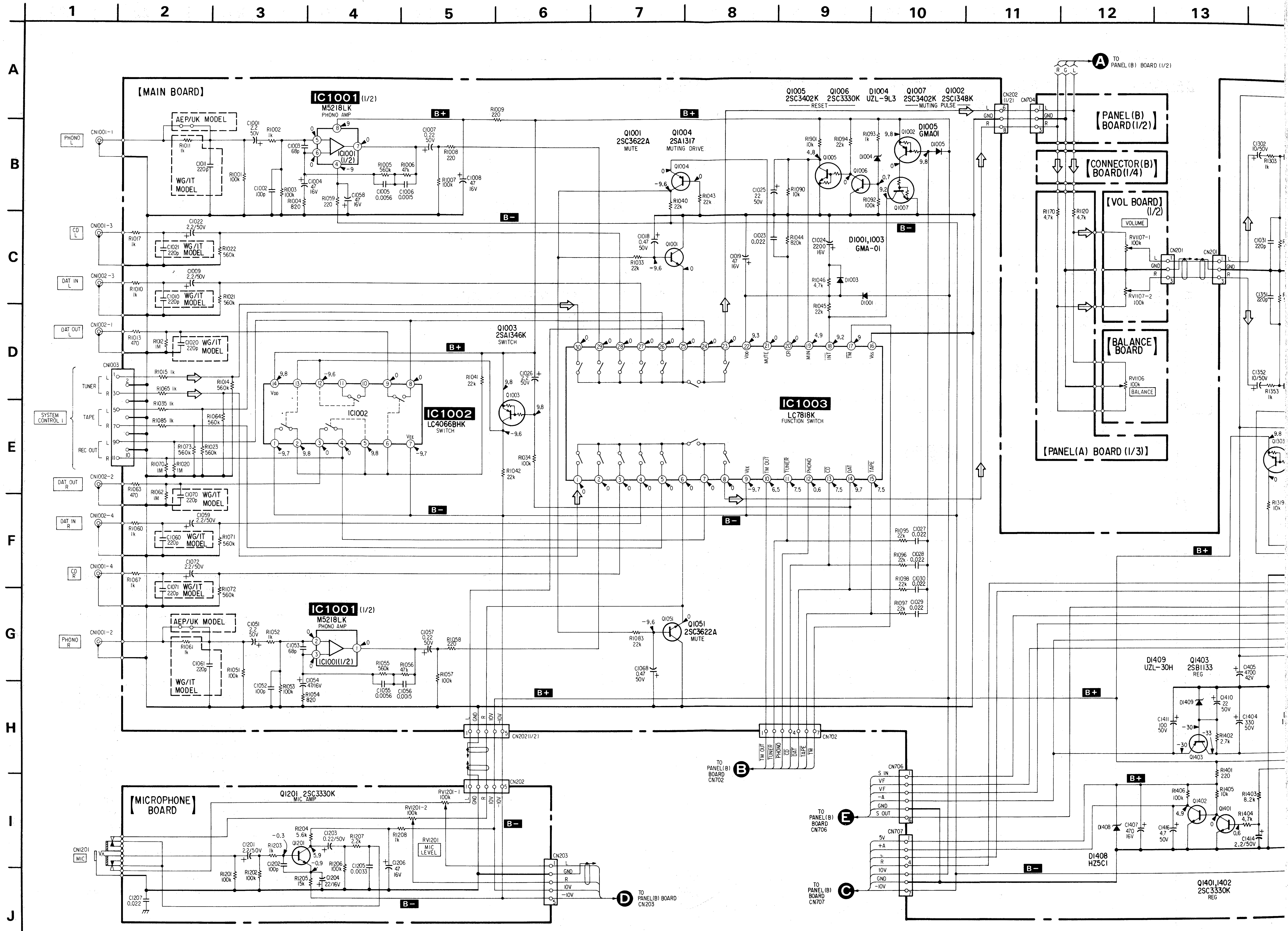
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- Switch

Ref. No.	Switch	Position
S1101	DOL	OFF
S1102	SURROUND	OFF
S1401	POWER	ON
S2001	EQUALIZER RECORDING	OFF
S2002	PHONO	OFF
S2003	TUNER	OFF
S2004	CD	OFF
S2005	TAPE	OFF
S2006	VIDEO/DAT	OFF

- Voltage and waveforms are dc with respect to ground under no-signal conditions.
- Voltages are taken with a VOM (50 kΩ/V).
  Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM

2-2. SCHEMATIC DIAGRAM — AMPLIFIER SECTION —

• Refer to page 5 for Note.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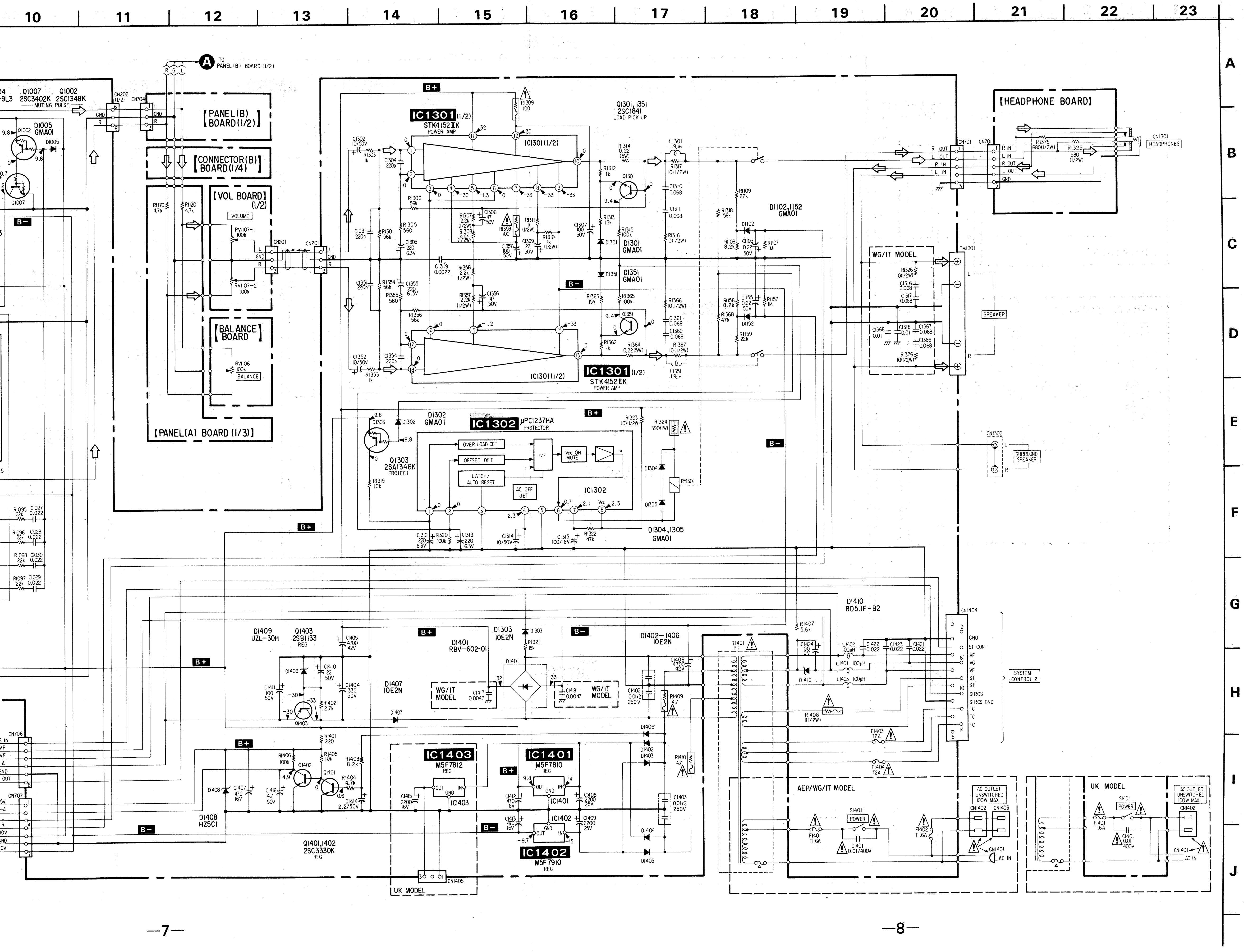
A
B
C
D
E
F
G
H
I
J
[MAIN BOARD]
IC1001 (1/2)
M5218LK
PHONO AMP
AEP/UK MODEL
WG/IT MODEL
PHONO L
CD L
DAT IN L
DAT OUT L
SYSTEM CONTROL I
TUNER
TAPE
REC OUT
DAT OUT R
DAT IN R
CD R
PHONO R
CN1001-1
CN1001-3
CN1002-3
CN1002-1
CN1003
CN1002-2
CN1002-4
CN1001-4
CN1001-2
B+
B−
Q1001 2SC3622A MUTE
Q1004 2SA1317 MUTING DRIVE
Q1005 2SC3402K
Q1006 2SC3330K
D1004 UZL-9L3
Q1007 2SC3402K
Q1002 2SC1348K
RESET
MUTING PULSE
D1005 GMA01
D1001,1003 GMA-01
Q1003 2SA1346K SWITCH
IC1002
LC4066BHK
SWITCH
IC1003
LC7818K
FUNCTION SWITCH
Q1051 2SC3622A MUTE
CN202 (1/2)
CN704
PANEL (B) BOARD (1/2)
CONNECTOR (B) BOARD (1/4)
VOL BOARD (1/2)
VOLUME
RV1107-1 100k
RV1107-2 100k
BALANCE BOARD
RV1106 100k
BALANCE
[PANEL (A) BOARD (1/3)]
CN201
TO PANEL (B) BOARD (1/2)
CN202 (1/2)
CN702
TO PANEL (B) BOARD CN702
TM OUT
TUNER
PHONO
CD
DAT
TAPE
TM
[MICROPHONE BOARD]
Q1201 2SC3330K MIC AMP
RV1201-1 100k
RV1201-2 100k
RV1201 MIC LEVEL
CN1201 MIC
CN202
CN203
TO PANEL (B) BOARD CN203
CN706
S IN
VF
VF
−A
GND
S OUT
TO PANEL (B) BOARD CN706
CN707
5V
+A
L
R
10V
GND
−10V
TO PANEL (B) BOARD CN707
D1409 UZL-30H
Q1403 2SB1133 REG
D1408 HZ5C1
Q1401,1402 2SC3330K REG
A
B
C
D
E

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

WG : West Germany model
IT : Itarian model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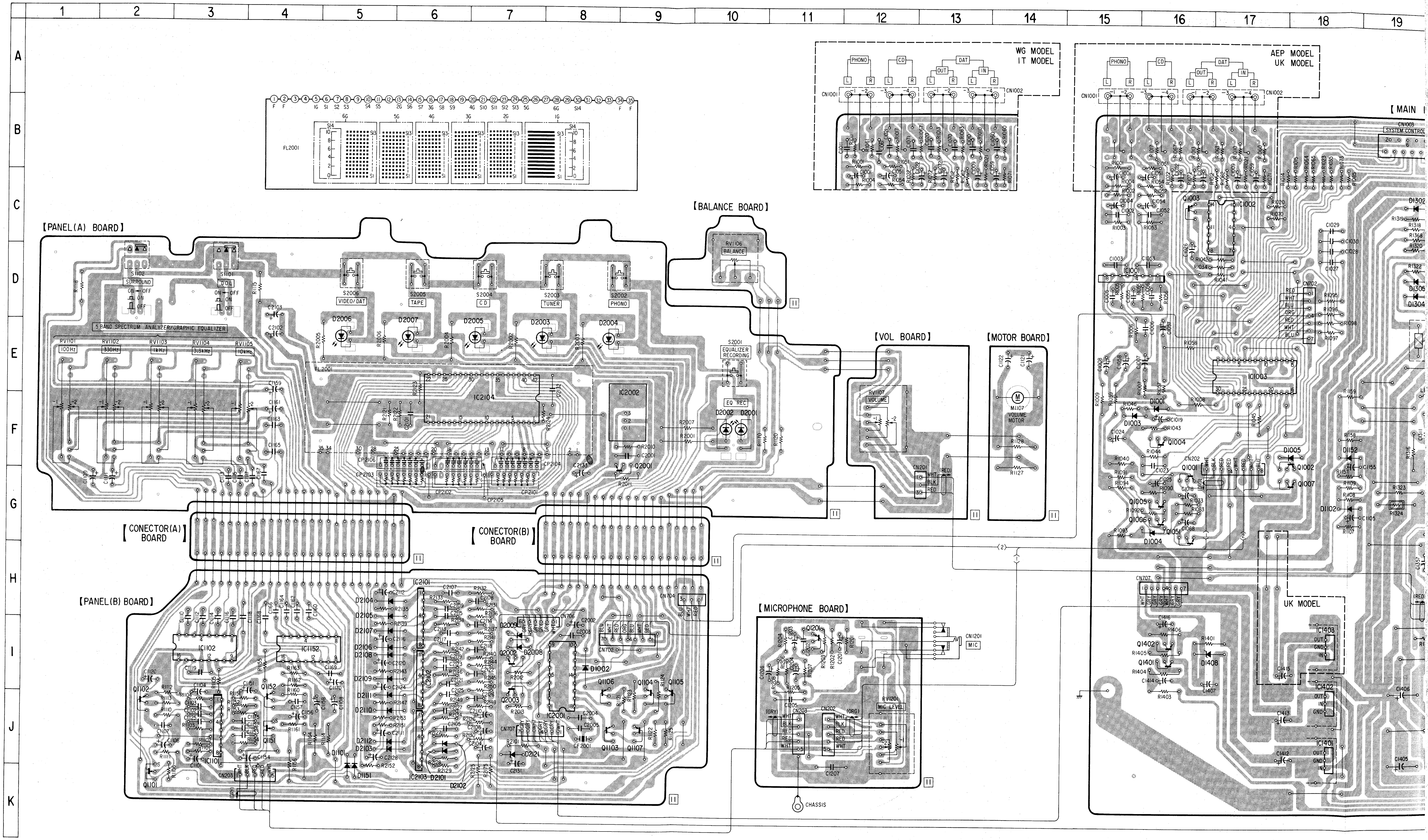
23
A
B
C
D
E
F
G
H
I
J
TO PANEL(B) BOARD (1/2)
Q1007 2SC3402K
Q1002 2SC1348K
D1005 GMA01
MUTING PULSE
CN202 (1/2)
CN704
[PANEL(B) BOARD(1/2)]
[CONNECTOR(B) BOARD(1/4)]
[VOL BOARD] (1/2)
VOLUME
RV1107-1 100k
RV1107-2 100k
[BALANCE BOARD]
RV1106 100k
BALANCE
[PANEL(A) BOARD (1/3)]
CN201
B+
B−
IC1301 (1/2)
STK4152IIK
POWER AMP
IC1301 (1/2)
Q1301, 1351 2SC1841
LOAD PICK UP
R1314 0.22 (5W)
L1301 1.9µH
R1364 0.22(5W)
L1351 1.9µH
D1301 GMA01
D1351 GMA01
D1102, 1152 GMA01
[HEADPHONE BOARD]
CN701
R OUT
L OUT
R IN
L IN
GND
R1375 680(1/2W)
R1325 680 (1/2W)
CN1301
HEADPHONES
WG/IT MODEL
TM1301
SPEAKER
L
R
CN1302
SURROUND SPEAKER
D1302 GMA01
IC1302
µPC1237HA
PROTECTOR
Q1303 2SA1346K
PROTECT
OVER LOAD DET
OFFSET DET
LATCH/ AUTO RESET
AC OFF DET
F/F
Vcc ON MUTE
IC1302
R1324 390(1W)
RY1301
D1304
D1305
D1304, 1305 GMA01
D1410 RD5.1F-B2
CN1404
GND
ST CONT
VF
VG
ST
SIRCS
SIRCS GND
TC
SYSTEM CONTROL 2
D1409 UZL-30H
Q1403 2SB1133
REG
D1401 RBV-602-01
D1303 10E2N
D1402-1406 10E2N
D1407 10E2N
WG/IT MODEL
T1401 PT
L1402 100µH
L1401 100µH
L1403 100µH
R1408 1(1/2W)
F1403 T2A
F1404 T2A
CN706
CN707
D1408 HZ5C1
Q1401, 1402 2SC3330K
REG
IC1403
M5F7812
REG
IC1401
M5F7810
REG
IC1402
M5F7910
REG
CN1405
UK MODEL
AEP/WG/IT MODEL
S1401 POWER
F1401 T1.6A
F1402 T1.6A
C1401 0.01/400V
AC OUTLET UNSWITCHED 100W MAX
CN1402
CN1403
CN1401
AC IN
UK MODEL
S1401 POWER
F1401 T1.6A
C1401 0.01 400V
AC OUTLET UNSWITCHED 100W MAX

2-3. PRINTED WIRING BOARDS

• Refer to page 13 for Semiconductor Lead Layouts.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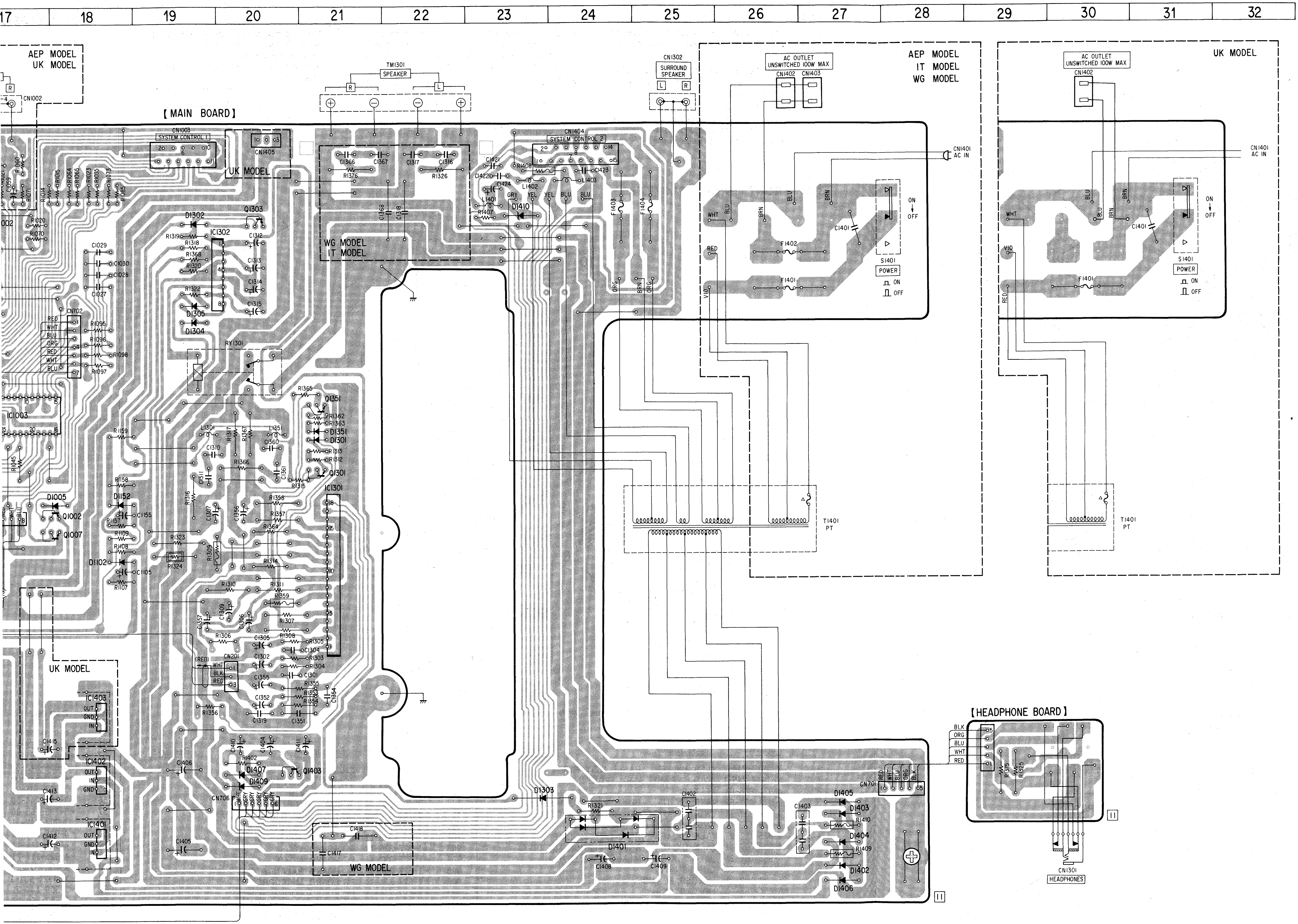
A
B
C
D
E
F
G
H
I
J
K
WG MODEL
IT MODEL
PHONO
CD
DAT
OUT
IN
CN1001
CN1002
AEP MODEL
UK MODEL
[MAIN
CN1003
SYSTEM CONTROL
FL2001
[PANEL(A) BOARD]
S1102
SURROUND
S1101
DOL
ON
OFF
5 BAND SPECTRUM ANALYZER/GRAPHIC EQUALIZER
RV1101
100Hz
RV1102
330Hz
RV1103
1kHz
RV1104
3.3kHz
RV1105
10kHz
S2006
VIDEO/DAT
S2005
TAPE
S2004
CD
S2003
TUNER
S2002
PHONO
D2006
D2007
D2005
D2003
D2004
IC2104
IC2002
[BALANCE BOARD]
RV1106
BALANCE
S2001
EQUALIZER
RECORDING
EQ REC
D2002
D2001
Q2001
[VOL BOARD]
RV1107
VOLUME
CN201
WHT
BLK
RED
[MOTOR BOARD]
M1107
VOLUME
MOTOR
IC1001
IC1002
IC1003
Q1003
Q1001
Q1002
Q1004
Q1005
Q1006
Q1007
D1001
D1003
D1004
D1005
CN202
CN702
CN707
[CONECTOR(A) BOARD]
[CONECTOR(B) BOARD]
[PANEL(B) BOARD]
IC1102
IC1152
IC1101
IC2101
IC2102
IC2103
IC2001
Q1101
Q1102
Q1151
Q1152
Q1103
Q1104
Q1105
Q1106
Q1107
Q2002
Q2003
D1101
D1151
D1002
D2101
D2102
D2008
D2009
CN203
CN704
CN706
CF2001
[MICROPHONE BOARD]
CN1201
MIC
Q1201
RV1201
MIC LEVEL
CHASSIS
UK MODEL
IC1401
IC1402
IC1403
Q1401
Q1402
D1408
D1102
D1152
D1302
D1304
D1305


17
18
19
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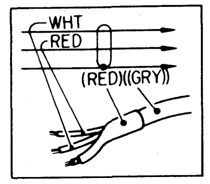
22
23
24
25
26
27
28
29
30
31
32
AEP MODEL
UK MODEL
[MAIN BOARD]
TM1301 SPEAKER
CN1302 SURROUND SPEAKER
AC OUTLET UNSWITCHED 100W MAX
CN1402
CN1403
AEP MODEL
IT MODEL
WG MODEL
UK MODEL
CN1003 SYSTEM CONTROL 1
CN1405
UK MODEL
CN1404 SYSTEM CONTROL 2
CN1401 AC IN
WG MODEL
IT MODEL
S1401 POWER
ON
OFF
F1401
F1402
F1403
F1404
C1401
RY1301
IC1302
IC1301
IC1003
Q1303
Q1351
Q1301
Q1002
Q1007
Q1403
D1302
D1305
D1304
D1005
D1152
D1102
D1410
D1407
D1409
D1303
D1401
D1402
D1403
D1404
D1405
D1406
T1401 PT
IC1403
IC1402
IC1401
UK MODEL
WG MODEL
CN201
CN702
CN706
CN701
[HEADPHONE BOARD]
CN1301 HEADPHONES
BLK
ORG
BLU
WHT
RED
YEL
GRY
BRN
VIO

● Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D1001	F-16	IC1001	D-15
D1002	I-8	IC1002	C-17
D1003	F-15	IC1003	E-17
D1004	G-16	IC1101	J-3
D1005	F-18	IC1102	I-3
D1101	J-5	IC1152	I-4
D1102	G-18	IC1301	G-21
D1151	K-5	IC1302	C-20
D1152	F-18	IC1401	J-18
D1301	E-21	IC1402	J-18
D1302	C-19	IC1403	I-18
D1303	J-23	IC2001	I-8
D1304	D-19	IC2002	F-9
D1305	D-19	IC2101	H-6
D1351	E-21	IC2102	I-6
D1401	J-24	IC2103	J-6
D1402	K-27	IC2104	F-7
D1403	J-27		
D1404	J-27	Q1001	F-16
D1405	J-27	Q1002	F-18
D1406	K-27	Q1003	C-16
D1407	I-20	Q1004	F-16
D1408	I-16	Q1005	G-16
D1409	J-20	Q1006	G-16
D1410	C-23	Q1007	G-18
D2001	F-10	Q1051	G-16
D2002	F-10	Q1101	K-2
D2003	E-7	Q1102	J-2
D2004	E-8	Q1103	J-8
D2005	E-7	Q1104	J-9
D2006	E-5	Q1105	J-9
D2007	E-6	Q1106	J-8
D2008	I-7	Q1107	J-9
D2009	I-7	Q1151	J-4
D2101	J-6	Q1152	J-4
D2102	J-6	Q1201	I-11
D2103	J-5	Q1301	F-21
D2104	H-5	Q1303	C-20
D2105	H-5	Q1351	E-21
D2106	I-5	Q1401	I-16
D2107	I-5	Q1402	I-16
D2108	I-5	Q1403	I-20
D2109	I-5	Q2001	F-9
D2110	J-5	Q2002	I-7
D2111	J-5	Q2003	I-7
D2112	J-5		
D2121	J-7		

Note:

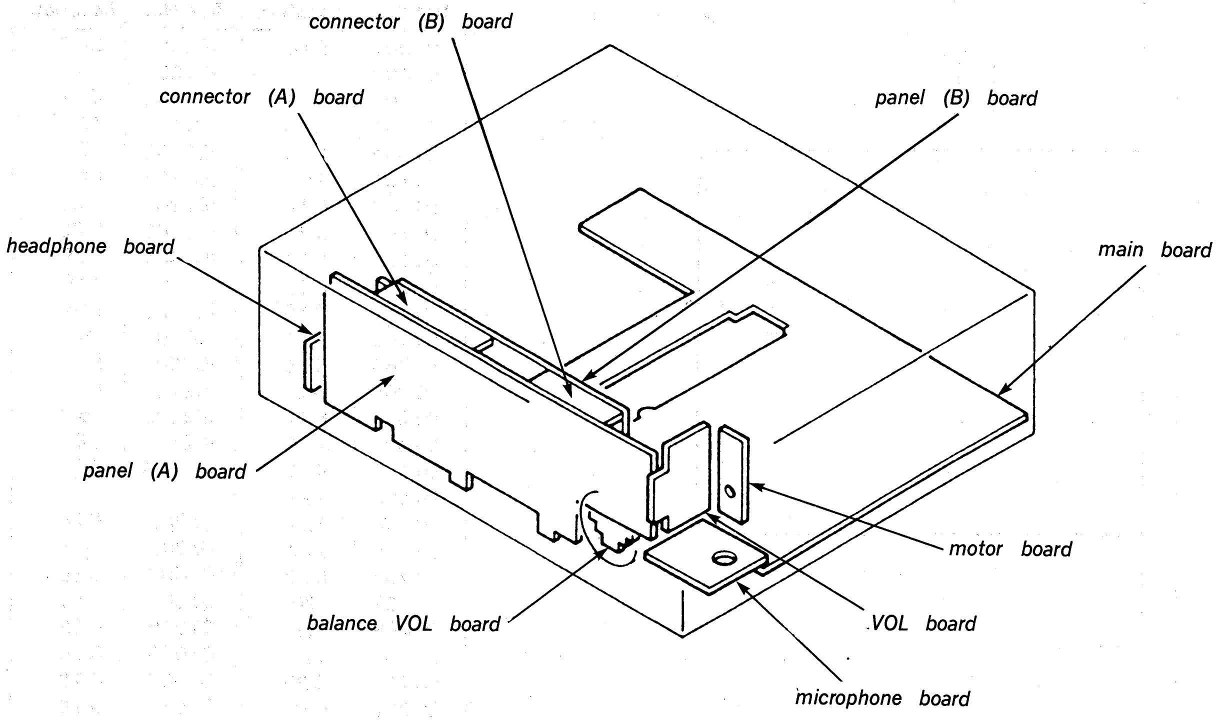
- Color code or sleeving over the end of the jacket.


WHT
RED
(RED)((GRY))

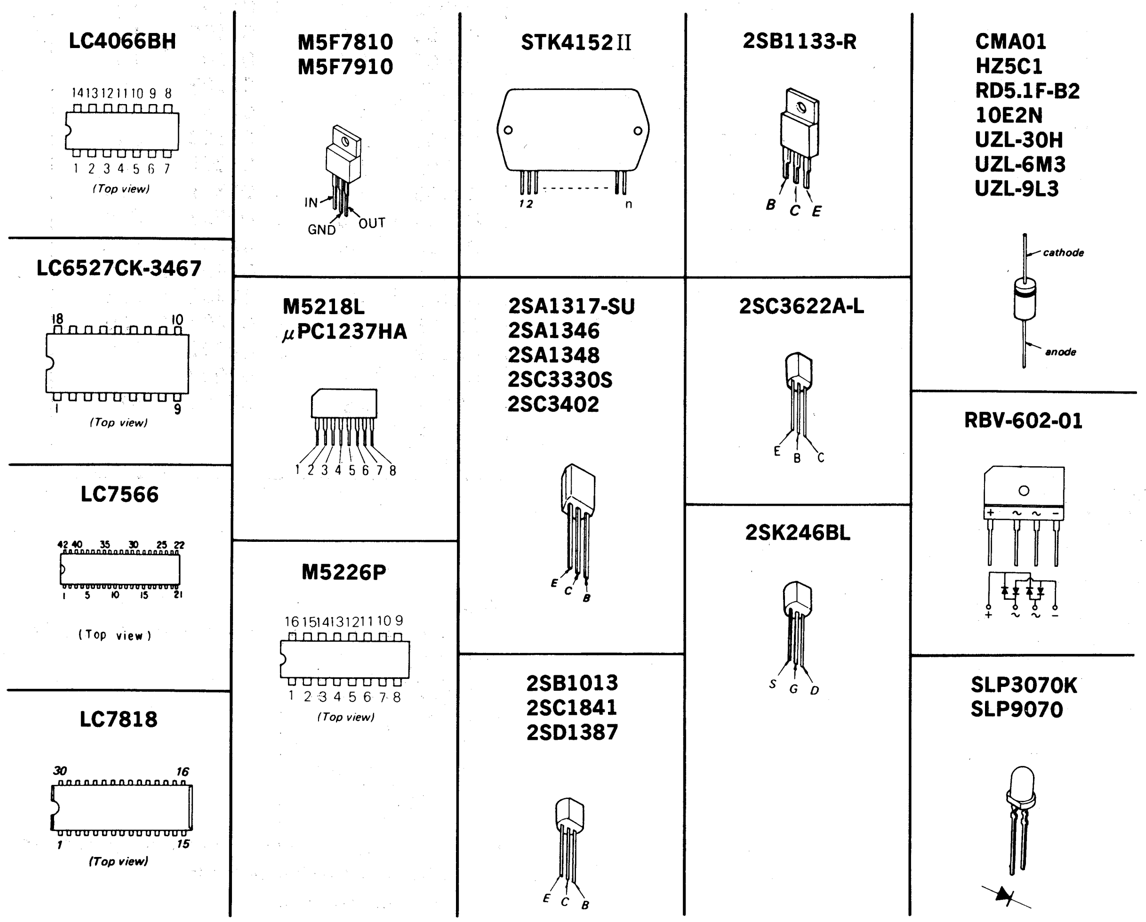
- o—— : parts extracted from the component side.

WG : West Germany model
IT : Itarian model

2-4. CIRCUIT BOARDS LOCATION


connector (B) board
connector (A) board
panel (B) board
headphone board
main board
panel (A) board
motor board
balance VOL board
VOL board
microphone board

2-5. SEMICONDUCTOR LEAD LAYOUTS


LC4066BH
14 13 12 11 10 9 8
1 2 3 4 5 6 7
(Top view)
LC6527CK-3467
18
10
1
9
(Top view)
LC7566
42 40 35 30 25 22
1 5 10 15 21
(Top view)
LC7818
30
16
1
15
(Top view)
M5F7810
M5F7910
IN
GND
OUT
M5218L
μPC1237HA
1 2 3 4 5 6 7 8
M5226P
16 15 14 13 12 11 10 9
1 2 3 4 5 6 7 8
(Top view)
STK4152II
1 2
n
2SA1317-SU
2SA1346
2SA1348
2SC3330S
2SC3402
E C B
2SB1013
2SC1841
2SD1387
E C B
2SB1133-R
B C E
2SC3622A-L
E B C
2SK246BL
S G D
CMA01
HZ5C1
RD5.1F-B2
10E2N
UZL-30H
UZL-6M3
UZL-9L3
cathode
anode
RBV-602-01
+ ~ ~ −
+ ~ ~ −
SLP3070K
SLP9070

SECTION 3
EXPLODED VIEWS

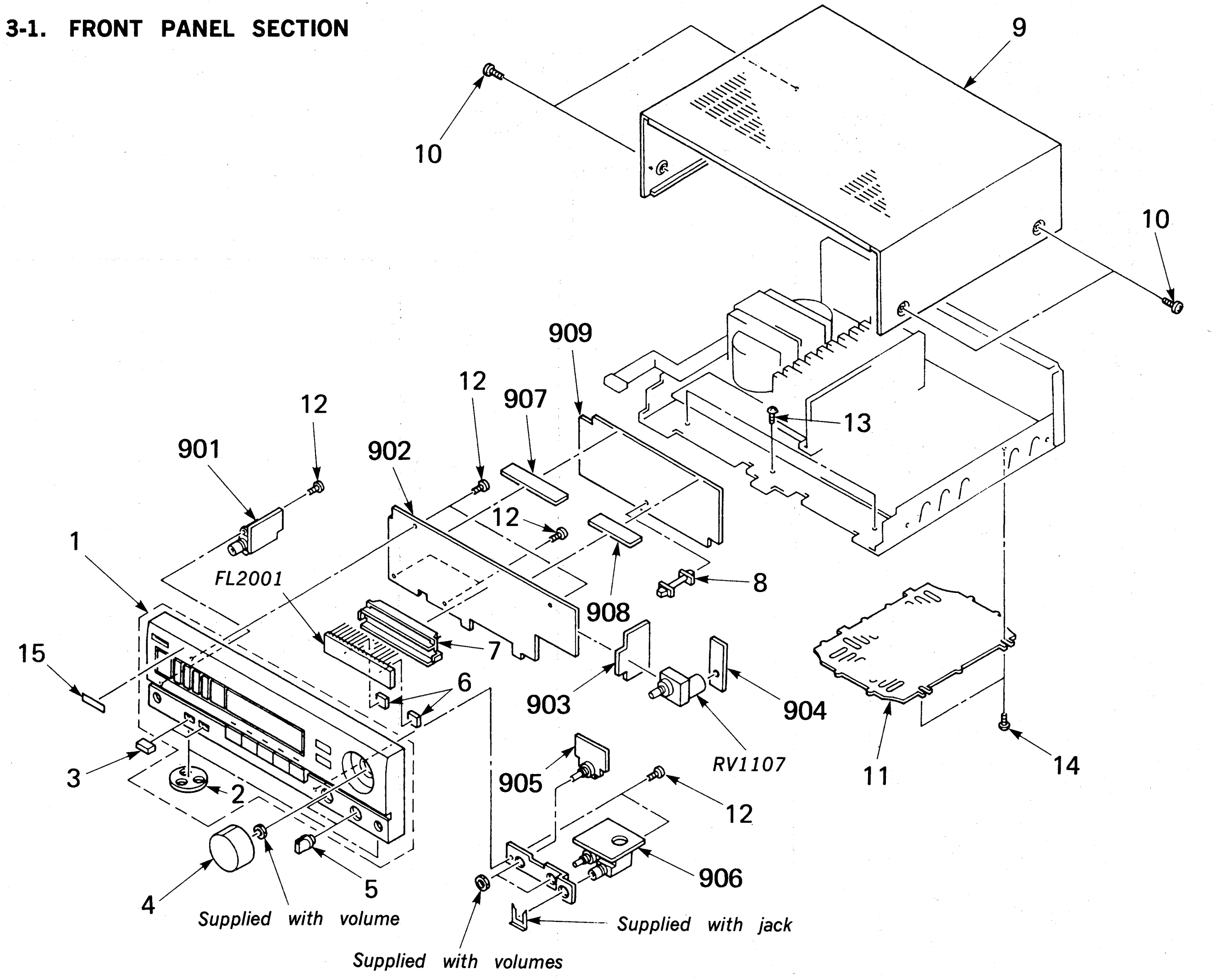
NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts Example:
  (RED) ... KNOB, BALANCE (WHITE)
  ↑ ↑
  Cabinet's Color Parts Color

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

WG : West Germany model
IT : Itarian model

3-1. FRONT PANEL SECTION


9
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909
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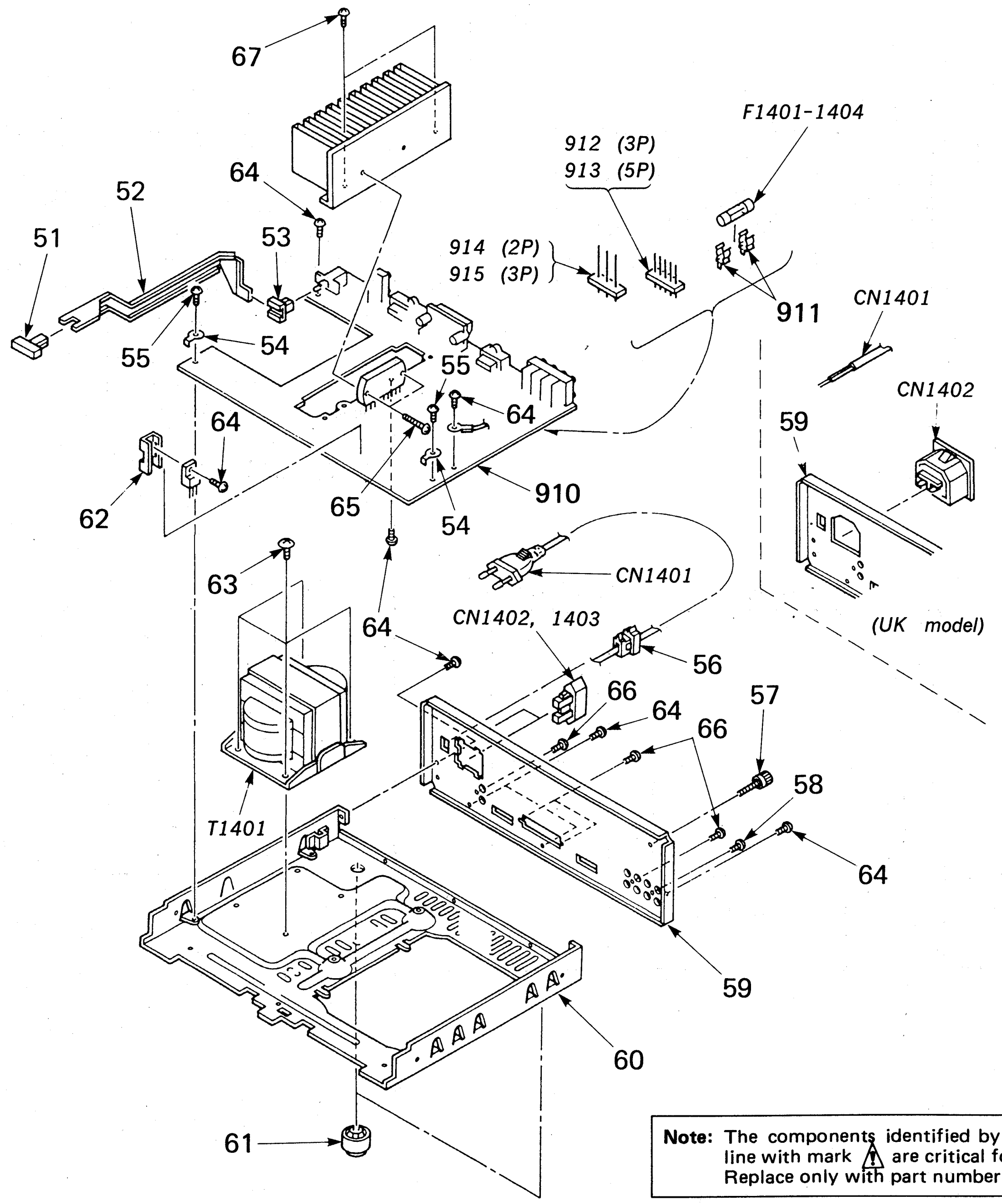
907
13
12
901
902
1
12
8
FL2001
908
15
7
6
903
904
RV1107
11
14
3
2
905
12
906
5
4
Supplied with volume
Supplied with jack
Supplied with volumes

Ref.No	Part No.	Description	Remarks
1	X-4917-244-1	(AEP, UK, IT)....PANEL ASSY, FRONT	2
1	X-4917-245-1	(WG)....PANEL ASSY, FRONT	2
2	4-921-906-01	FELT	
3	4-918-062-62	(AEP, UK, IT)....BUTTON (G) (SURROUND, DOL)	
3	4-918-062-71	(WG)....BUTTON (G) (SURROUND, DOL)	
4	4-925-121-11	(WG)....KNOB (VOLUME)	
4	4-925-121-21	(AEK, UK, IT)....KNOB (V2) (VOLUME)	
5	4-908-097-11	(AEK, UK, IT)....KNOB (BALANCE, MIC LEVEL)	
5	4-908-097-21	(WG)....KNOB (BALANCE, MIC LEVEL)	
6	⋆4-921-941-21	CUSHION (FL)	
7	⋆4-923-103-01	HOLDER, FL TUBE	
8	⋆3-661-764-00	HOLDER, PCB	
9	4-919-378-21	(AEP, UK, IT)....CASE	
9	4-919-378-31	(WG)....CASE	
10	3-704-366-01	SCREW (CASE) (M3X8)	
11	⋆X-4917-246-1	CHASSIS ASSY	
12	7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S	
13	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
14	7-682-548-04	SCREW +BVTT 3X8 (S)	
15	3-701-690-00	(UK)....LABEL (MADE IN JAPAN)	
901	⋆1-627-332-11	PC BOARD, HEADPHONE	
902	⋆1-627-333-11	PC BOARD, PANEL (A)	
903	⋆1-627-336-11	PC BOARD, VOL	
904	⋆1-627-337-11	PC BOARD, MOTOR	
905	⋆1-627-338-11	PC BOARD, BALANCE VOL	
906	⋆1-627-335-11	PC BOARD, MICROPHONE	
907	⋆1-627-339-11	PC BOARD, CONNECTOR (A)	
908	⋆1-627-340-11	PC BOARD, CONNECTOR (B)	
909	⋆A-4375-405-A	MOUNTED PCB, PANEL (B)	

3-2. CHASSIS ASSEMBLY



Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No	Part No.	Description	Remarks
51	4-923-162-01	(AEP, UK, IT)....BUTTON (P) (POWER)	
51	4-923-162-11	(WG)....BUTTON (P) (POWER)	
52	*4-925-151-01	JOINT	
53	4-866-342-00	JOINT (B), KNOB	
54	4-870-539-00	PLATE, GROUND	
55	3-703-685-21	SCREW (+BV 3X8)	
56	*3-703-244-00	BUSHING (2104), CORD	
57	*3-706-165-00	(AEP, WG, IT)....SCREW	
58	3-704-242-01	SCREW, TERMINAL, + BVTP CLAW	
59	*4-925-111-01	(AEP, IT)....PANEL, BACK	
59	*4-925-111-11	(WG)....PANEL, BACK	
59	*4-925-111-21	(UK)....PANEL, BACK	
60	*X-4917-246-1	CHASSIS ASSY	
61	X-4921-901-1	FOOT ASSY	
62	*3-309-144-21	HEAT SINK	
63	7-682-560-04	SCREW +BVTT 4X6 (S)	
64	7-682-548-04	SCREW +BVTT 3X8 (S)	
65	7-685-650-79	SCREW BVTP 3X16 TYPE2 IT-3	
66	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	

Ref.No	Part No.	Description	Remarks
67	7-682-549-04	SCREW +BVTT 3X10 (S)	
910	*A-4388-770-A	(AEP)....MOUNTED PCB, MAIN	
910	*A-4388-769-A	(UK)....MOUNTED PCB, MAIN	
910	*A-4388-771-A	(WG, IT)....MOUNTED PCB, MAIN	
911	1-533-183-11	HOLDER, FUSE	
912	*1-535-116-00	TERMINAL	
913	*1-535-118-00	TERMINAL	
914	*1-535-139-00	BASE POST 22MM (10MM PITCH) 2P	
915	*1-535-140-00	BASE POST 22MM (10MM PITCH) 3P	
CN1401	⚠.1-555-750-00	(AEP, WG, IT)....CORD, POWER	
CN1401	⚠.1-556-035-00	(UK)....CORD, POWER	
CN1402	⚠.1-526-794-11	(AEP, WG, IT)....OUTLET, AC	
CN1402	⚠.1-526-751-00	(UK)....OUTLET, AC	
CN1403	⚠.1-526-794-11	(AEP, WG, IT)....OUTLET, AC	
F1401	⚠.1-532-259-00	FUSE, TIME-LAG	
F1402	⚠.1-532-259-00	FUSE, TIME-LAG	
F1403	⚠.1-532-203-00	FUSE, TIME-LAG	
F1404	⚠.1-532-203-00	FUSE, TIME-LAG	
T1401	⚠.1-449-369-11	TRANSFORMER, POWER	

SECTION 4
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

WG : West Germany model
IT : Itarin model

Ref.No	Part No.	Description
901	*1-627-332-11	PC BOARD, HEADPHONE
902	*1-627-333-11	PC BOARD, PANEL (A)
903	*1-627-336-11	PC BOARD, VOL
904	*1-627-337-11	PC BOARD, MOTOR
905	*1-627-338-11	PC BOARD, BALANCE VOL
906	*1-627-335-11	PC BOARD, MICROPHONE
907	*1-627-339-11	PC BOARD, CONNECTOR (A)
908	*1-627-340-11	PC BOARD, CONNECTOR (B)
909	*A-4375-405-A	MOUNTED PCB, PANEL (B)
910	*A-4388-769-A	(UK)....MOUNTED PCB, MAIN
910	*A-4388-770-A	(AEP)....MOUNTED PCB, MAIN
910	*A-4388-771-A	(WG, IT)....MOUNTED PCB, MAIN
911	1-533-183-11	HOLDER, FUSE
912	*1-535-116-00	TERMINAL
913	*1-535-118-00	TERMINAL
914	*1-535-139-00	BASE POST 22MM (IOMM PITCH) 2P
915	*1-535-140-00	BASE POST 22MM (IOMM PITCH) 3P

CAPACITOR

Ref.No	Part No.	Description			
C1001	1-124-925-11	ELECT	2.2MF	20%	50V
C1002	1-162-282-31	CERAMIC	100PF	10%	50V
C1003	1-162-219-31	CERAMIC	68PF	5%	50V
C1004	1-124-477-11	ELECT	47MF	20%	16V
C1005	1-130-480-00	MYLAR	0.0056MF	5%	50V
C1006	1-130-473-00	MYLAR	0.0015MF	5%	50V
C1007	1-124-464-11	ELECT	0.22MF	20%	50V
C1008	1-124-477-11	ELECT	47MF	20%	16V
C1009	1-124-925-11	ELECT	2.2MF	20%	50V
C1010	1-162-286-31	(WG, IT)....CERAMIC	220PF	10%	50V
C1011	1-162-286-31	(WG, IT)....CERAMIC	220PF	10%	50V
C1018	1-124-902-00	ELECT	0.47MF	20%	50V
C1019	1-124-477-11	ELECT	47MF	20%	16V
C1020	1-162-286-31	(WG, IT)....CERAMIC	220PF	10%	50V
C1021	1-162-286-31	(WG, IT)....CERAMIC	220PF	10%	50V
C1022	1-124-925-11	ELECT	2.2MF	20%	50V
C1023	1-161-494-00	CERAMIC	0.022MF		25V
C1024	1-124-556-11	ELECT	2200MF	20%	16V
C1025	1-124-908-11	ELECT	22MF	20%	50V
C1026	1-124-925-11	ELECT	2.2MF	20%	50V
C1027	1-161-494-00	CERAMIC	0.022MF		25V
C1028	1-161-494-00	CERAMIC	0.022MF		25V
C1029	1-161-494-00	CERAMIC	0.022MF		25V
C1030	1-161-494-00	CERAMIC	0.022MF		25V
C1051	1-124-925-11	ELECT	2.2MF	20%	50V
C1052	1-162-282-31	CERAMIC	100PF	10%	50V
C1053	1-162-219-31	CERAMIC	68PF	5%	50V
C1054	1-124-477-11	ELECT	47MF	20%	16V
C1055	1-130-480-00	MYLAR	0.0056MF	5%	50V
C1056	1-130-473-00	MYLAR	0.0015MF	5%	50V
C1057	1-124-464-11	ELECT	0.22MF	20%	50V
C1058	1-124-477-11	ELECT	47MF	20%	16V
C1059	1-124-925-11	ELECT	2.2MF	20%	50V

Ref.No	Part No.	Description			
C1060	1-162-286-31	(WG, IT)....CERAMIC	220PF	10%	50V
C1061	1-162-286-31	(WG, IT)....CERAMIC	220PF	10%	50V
C1068	1-124-902-00	ELECT	0.47MF	20%	50V
C1070	1-162-286-31	(WG, IT)....CERAMIC	220PF	10%	50V
C1071	1-162-286-31	(WG, IT)....CERAMIC	220PF	10%	50V
C1072	1-124-925-11	ELECT	2.2MF	20%	50V
C1101	1-123-875-11	ELECT	10MF	20%	50V
C1102	1-162-219-31	CERAMIC	68PF	5%	50V
C1103	1-162-219-31	CERAMIC	68PF	5%	50V
C1104	1-123-875-11	ELECT	10MF	20%	50V
C1105	1-124-464-11	ELECT	0.22MF	20%	50V
C1106	1-124-902-00	ELECT	0.47MF	20%	50V
C1107	1-130-480-00	MYLAR	0.0056MF	5%	50V
C1108	1-124-477-11	ELECT	47MF	20%	16V
C1109	1-124-254-00	ELECT	0.68MF	20%	50V
C1110	1-130-490-11	MYLAR	0.039MF	5%	50V
C1111	1-124-464-11	ELECT	0.22MF	20%	50V
C1112	1-130-484-00	MYLAR	0.012MF	5%	50V
C1113	1-130-493-00	MYLAR	0.068MF	5%	50V
C1114	1-130-478-00	MYLAR	0.0039MF	5%	50V
C1115	1-130-487-00	MYLAR	0.022MF	5%	50V
C1116	1-130-472-00	MYLAR	0.0012MF	5%	50V
C1117	1-161-329-00	CERAMIC	0.0068MF	20%	16V
C1118	1-162-289-31	CERAMIC	390PF	10%	50V
C1119	1-162-282-31	CERAMIC	100PF	10%	50V
C1120	1-123-875-11	ELECT	10MF	20%	50V
C1121	1-123-875-11	ELECT	10MF	20%	50V
C1122	1-123-875-11	ELECT	10MF	20%	50V
C1125	1-162-282-31	CERAMIC	100PF	10%	50V
C1151	1-123-875-11	ELECT	10MF	20%	50V
C1152	1-162-219-31	CERAMIC	68PF	5%	50V
C1153	1-162-219-31	CERAMIC	68PF	5%	50V
C1154	1-123-875-11	ELECT	10MF	20%	50V
C1155	1-124-464-11	ELECT	0.22MF	20%	50V
C1156	1-124-902-00	ELECT	0.47MF	20%	50V
C1157	1-130-480-00	MYLAR	0.0056MF	5%	50V
C1158	1-124-477-11	ELECT	47MF	20%	16V
C1159	1-124-254-00	ELECT	0.68MF	20%	50V
C1160	1-130-490-11	MYLAR	0.039MF	5%	50V
C1161	1-124-464-11	ELECT	0.22MF	20%	50V
C1162	1-130-484-00	MYLAR	0.012MF	5%	50V
C1163	1-130-493-00	MYLAR	0.068MF	5%	50V
C1164	1-130-478-00	MYLAR	0.0039MF	5%	50V
C1165	1-130-487-00	MYLAR	0.022MF	5%	50V
C1166	1-130-472-00	MYLAR	0.0012MF	5%	50V
C1167	1-161-329-00	CERAMIC	0.0068MF	20%	16V
C1168	1-162-289-31	CERAMIC	390PF	10%	50V
C1169	1-162-282-31	CERAMIC	100PF	10%	50V
C1170	1-123-875-11	ELECT	10MF	20%	50V
C1175	1-162-282-31	CERAMIC	100PF	10%	50V
C1201	1-124-257-00	ELECT	2.2MF	20%	50V
C1202	1-162-282-31	CERAMIC	100PF	10%	50V

Ref.No	Part No.	Description			
C1203	1-124-464-11	ELECT	0.22MF	20%	50V
C1204	1-124-234-00	ELECT	22MF	20%	16V
C1205	1-161-327-00	CERAMIC	0.0033MF	20%	16V
C1206	1-124-589-11	ELECT	47MF	20%	16V
C1207	1-162-596-00	CERAMIC	0.022MF		25V
C1301	1-162-286-31	CERAMIC	220PF	10%	50V
C1302	1-123-875-11	ELECT	10MF	20%	50V
C1304	1-162-286-31	CERAMIC	220PF	10%	50V
C1305	1-126-176-11	ELECT	220MF	20%	6.3V
C1306	1-124-910-11	ELECT	47MF	20%	50V
C1307	1-124-122-11	ELECT	100MF	20%	50V
C1309	1-124-908-11	ELECT	22MF	20%	50V
C1310	1-130-493-00	MYLAR	0.068MF	5%	50V
C1311	1-130-493-00	MYLAR	0.068MF	5%	50V
C1312	1-126-176-11	ELECT	220MF	20%	6.3V
C1313	1-126-176-11	ELECT	220MF	20%	6.3V
C1314	1-123-875-11	ELECT	10MF	20%	50V
C1315	1-126-101-11	ELECT	100MF	20%	16V
C1316	1-130-493-00	(WG, IT)....MYLAR	0.068MF	5%	50V
C1317	1-130-493-00	(WG, IT)....MYLAR	0.068MF	5%	50V
C1318	1-161-379-00	(WG, IT)....CERAMIC	0.01MF	20%	16V
C1319	1-161-494-00	CERAMIC	0.022MF		25V
C1351	1-162-286-31	CERAMIC	220PF	10%	50V
C1352	1-123-875-11	ELECT	10MF	20%	50V
C1354	1-162-286-31	CERAMIC	220PF	10%	50V
C1355	1-126-176-11	ELECT	220MF	20%	6.3V
C1356	1-124-910-11	ELECT	47MF	20%	50V
C1357	1-124-122-11	ELECT	100MF	20%	50V
C1358	1-130-495-00	MYLAR	0.1MF	5%	50V
C1360	1-130-493-00	MYLAR	0.068MF	5%	50V
C1361	1-130-493-00	MYLAR	0.068MF	5%	50V
C1366	1-130-493-00	(WG, IT)....MYLAR	0.068MF	5%	50V
C1367	1-130-493-00	(WG, IT)....MYLAR	0.068MF	5%	50V
C1368	1-161-379-00	(WG, IT)....CERAMIC	0.01MF	20%	16V
C1401	⚠1-161-744-00	CERAMIC	0.01MF		400V
C1402	1-102-355-00	CERAMIC	0.01MF		250V
C1403	1-102-355-00	CERAMIC	0.01MF		250V
C1404	1-124-912-11	ELECT	330MF	20%	50V
C1405	1-126-224-11	ELECT	4700MF	20%	42V
C1406	1-126-224-11	ELECT	4700MF	20%	42V
C1407	1-126-103-11	ELECT	470MF	20%	16V
C1408	1-124-563-11	ELECT	2200MF	20%	25V
C1409	1-124-563-11	ELECT	2200MF	20%	25V
C1410	1-124-908-11	ELECT	22MF	20%	50V
C1411	1-124-122-11	ELECT	100MF	20%	50V
C1412	1-126-103-11	ELECT	470MF	20%	16V
C1413	1-126-103-11	ELECT	470MF	20%	16V
C1414	1-124-925-11	ELECT	2.2MF	20%	50V
C1415	1-124-556-11	(UK)....ELECT	2200MF	20%	16V
C1416	1-124-927-11	ELECT	4.7MF	20%	50V
C1417	1-161-377-00	(WG, IT)....CERAMIC	0.0047MF	30%	50V
C1418	1-161-377-00	(WG, IT)....CERAMIC	0.0047MF	30%	50V
C1421	1-101-005-00	CERAMIC	0.022MF		50V
C1422	1-101-005-00	CERAMIC	0.022MF		50V
C1423	1-101-005-00	CERAMIC	0.022MF		50V
C1424	1-126-101-11	ELECT	100MF	20%	10V
C2001	1-162-294-31	CERAMIC	0.001MF	10%	50V
C2002	1-124-477-11	ELECT	47MF	20%	16V
C2003	1-161-494-00	CERAMIC	0.022MF		25V
C2004	1-162-211-31	CERAMIC	33PF	5%	50V
C2005	1-162-211-31	CERAMIC	33PF	5%	50V
C2006	1-162-289-31	CERAMIC	390PF	10%	50V
C2101	1-161-374-11	CERAMIC	0.0015MF	20%	16V
C2102	1-124-908-11	ELECT	22MF	20%	50V
C2103	1-124-908-11	ELECT	22MF	20%	50V

Ref.No	Part No.	Description			
C2104	1-124-925-11	ELECT	2.2MF	20%	50V
C2105	1-162-219-31	CERAMIC	68PF	5%	50V
C2106	1-124-908-11	ELECT	22MF	20%	50V
C2107	1-130-488-00	MYLAR	0.027MF	5%	50V
C2108	1-130-488-00	MYLAR	0.027MF	5%	50V
C2109	1-162-219-31	CERAMIC	68PF	5%	50V
C2110	1-124-908-11	ELECT	22MF	20%	50V
C2111	1-124-925-11	ELECT	2.2MF	20%	50V
C2112	1-124-925-11	ELECT	2.2MF	20%	50V
C2113	1-161-379-00	CERAMIC	0.01MF	20%	16V
C2114	1-161-379-00	CERAMIC	0.01MF	20%	16V
C2115	1-162-219-31	CERAMIC	68PF	5%	50V
C2116	1-124-925-11	ELECT	2.2MF	20%	50V
C2117	1-161-327-00	CERAMIC	0.0033MF	20%	16V
C2118	1-161-327-00	CERAMIC	0.0033MF	20%	16V
C2119	1-162-219-31	CERAMIC	68PF	5%	50V
C2120	1-124-925-11	ELECT	2.2MF	20%	50V
C2121	1-161-327-00	CERAMIC	0.0033MF	20%	16V
C2122	1-161-327-00	CERAMIC	0.0033MF	20%	16V
C2123	1-162-219-31	CERAMIC	68PF	5%	50V
C2124	1-124-925-11	ELECT	2.2MF	20%	50V
C2125	1-161-327-00	CERAMIC	0.0033MF	20%	16V
C2126	1-161-327-00	CERAMIC	0.0033MF	20%	16V
C2127	1-162-219-31	CERAMIC	68PF	5%	50V
C2128	1-124-925-11	ELECT	2.2MF	20%	50V
C2131	1-124-925-11	ELECT	2.2MF	20%	50V
C2132	1-161-494-00	CERAMIC	0.022MF		25V
C2133	1-126-101-11	ELECT	100MF	20%	16V
CF2001	1-567-738-11	VIBRATOR, CERAMIC			
CN201	*1-564-506-11	PLUG, CONNECTOR 3P			
CN202	*1-564-511-41	PLUG, CONNECTOR 8P			
CN702	*1-564-510-11	PLUG, CONNECTOR 7P			
CN706	*1-564-340-51	PIN, CONNECTOR 6P			
CN1001	1-565-258-11	JACK, PIN 4P (PHONO, CD)			
CN1002	1-565-258-21	JACK, PIN 4P (DAT IN/OUT)			
CN1003	*1-566-858-11	SOCKET, CONNECTOR 11P (SYSTEM CONTROL 1)			
CN1201	1-565-117-11	JACK, LARGE TYPE (MIC)			
CN1301	1-507-983-11	JACK (LARGE TYPE) (HEADPHONES)			
CN1302	1-565-352-21	JACK, PIN 2P (SURROUND SPEAKER)			
CN1401	⚠.1-555-750-00	(AEP, WG, IT)....CORD, POWER			
CN1401	⚠.1-556-035-00	(UK)....CORD, POWER			
CN1402	⚠.1-526-794-11	(AEP, WG, IT)....OUTLET, AC			
CN1402	⚠.1-526-751-00	(UK)....OUTLET, AC			
CN1403	⚠.1-526-794-11	(AEP, WG, IT)....OUTLET, AC			
CN1404	*1-566-859-11	SOCKET, CONNECTOR 15P (SYSTEM CONTROL 2)			
CN1405	*1-566-210-11	(UK)....PIN, CONNECTOR 3P			
CNJ707	*1-564-341-71	PIN, CONNECTOR 7P			
CNP707	*1-566-452-11	HOUSING, CONNECTOR 7P			
CP2101	1-233-081-11	COMPOSITION CIRCUIT BLOCK			
CP2102	1-233-081-11	COMPOSITION CIRCUIT BLOCK			
CP2103	1-233-081-11	COMPOSITION CIRCUIT BLOCK			
CP2104	1-233-151-11	COMPOSITION CIRCUIT BLOCK			
CP2105	1-233-151-11	COMPOSITION CIRCUIT BLOCK			
CP2106	1-233-151-11	COMPOSITION CIRCUIT BLOCK			
D1001	1-806-937-11	DIODE GMA01			
D1002	1-806-937-11	DIODE GMA01			
D1003	1-806-937-11	DIODE GMA01			
D1004	8-719-001-09	DIODE UZL-9L3			
D1005	1-806-937-11	DIODE GMA01			
D1101	1-806-937-11	DIODE GMA01			
D1102	1-806-937-11	DIODE GMA01			
D1151	1-806-937-11	DIODE GMA01			

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No	Part No.	Description
D1152	1-806-937-11	DIODE GMA01
D1301	1-806-937-11	DIODE GMA01
D1302	1-806-937-11	DIODE GMA01
D1303	8-719-200-77	DIODE 10E2N
D1304	1-806-937-11	DIODE GMA01
D1305	1-806-937-11	DIODE GMA01
D1351	1-806-937-11	DIODE GMA01
D1401	8-719-302-38	DIODE RBV-602-01
D1402	8-719-200-77	DIODE 10E2N
D1403	8-719-200-77	DIODE 10E2N
D1404	8-719-200-77	DIODE 10E2N
D1405	8-719-200-77	DIODE 10E2N
D1406	8-719-200-77	DIODE 10E2N
D1407	8-719-200-77	DIODE 10E2N
D1408	8-719-911-50	DIODE HZ5C1
D1409	8-719-002-57	DIODE UZL-30H
D1410	8-719-160-23	DIODE RD5.1F-B2
D2001	1-807-689-11	DIODE SLP9070
D2002	1-807-689-11	DIODE SLP9070
D2003	8-719-969-90	DIODE SLP3070K
D2004	8-719-969-90	DIODE SLP3070K
D2005	8-719-969-90	DIODE SLP3070K
D2006	8-719-969-90	DIODE SLP3070K
D2007	8-719-969-90	DIODE SLP3070K
D2008	1-806-937-11	DIODE GMA01
D2009	1-806-937-11	DIODE GMA01
D2101	1-806-937-11	DIODE GMA01
D2102	1-806-937-11	DIODE GMA01
D2103	1-806-937-11	DIODE GMA01
D2104	1-806-937-11	DIODE GMA01
D2105	1-806-937-11	DIODE GMA01
D2106	1-806-937-11	DIODE GMA01
D2107	1-806-937-11	DIODE GMA01
D2108	1-806-937-11	DIODE GMA01
D2109	1-806-937-11	DIODE GMA01
D2110	1-806-937-11	DIODE GMA01
D2111	1-806-937-11	DIODE GMA01
D2112	1-806-937-11	DIODE GMA01
D2121	8-719-000-63	DIODE UZL-6M3
F1401 ⚠	1-532-259-00	FUSE, TIME-LAG
F1402 ⚠	1-532-259-00	FUSE, TIME-LAG
F1403 ⚠	1-532-203-00	FUSE, TIME-LAG
F1404 ⚠	1-532-203-00	FUSE, TIME-LAG
FL2001	1-519-441-11	INDICATOR TUBE, FLUORESCENT
IC1001	8-759-600-02	IC M5218LK
IC1002	8-759-800-37	IC LC4066BH
IC1003	8-759-802-52	IC LC7818
IC1101	8-759-600-02	IC M5218L
IC1102	8-759-602-04	IC M5226P
IC1152	8-759-602-04	IC M5226P
IC1301	8-749-941-52	IC STK4152II
IC1302	8-759-111-68	IC UPC1237HA
IC1401	8-759-604-32	IC M5F7810
IC1402	8-759-604-50	IC M5F7910
IC1403	8-759-604-33	(UK)....IC M5F7812
IC2001	8-759-800-07	IC LC6527CK-3467
IC2002	8-749-920-03	IC GP1U52
IC2101	8-759-600-02	IC M5218L
IC2102	8-759-600-02	IC M5218L
IC2103	8-759-600-02	IC M5218L
IC2104	8-759-820-07	IC LC7566
L1301	*1-420-872-00	COIL, AIR CORE (1.9UH)
L1351	*1-420-872-00	COIL, AIR CORE (1.9UH)
L1401	1-410-564-11	INDUCTOR 100UH

Ref.No	Part No.	Description
L1402	1-410-564-11	INDUCTOR 100UH
L1403	1-410-564-11	INDUCTOR 100UH
M1107	1-238-079-11	RES, VAR, CARBON (MOTOR) 100KX2
Q1001	8-729-107-98	TRANSISTOR 2SC3622A-L
Q1002	9-986-159-01	TRANSISTOR 2SA1348
Q1003	8-729-806-16	TRANSISTOR 2SA1346
Q1004	8-729-820-10	TRANSISTOR 2SA1317-SU
Q1005	8-729-806-28	TRANSISTOR 2SC3402
Q1006	8-729-820-23	TRANSISTOR 2SC3330S
Q1007	8-729-806-28	TRANSISTOR 2SC3402
Q1051	8-729-107-98	TRANSISTOR 2SC3622A-L
Q1101	8-729-224-63	TRANSISTOR 2SK246BL
Q1102	8-729-820-23	TRANSISTOR 2SC3330S
Q1103	9-986-159-01	TRANSISTOR 2SA1348
Q1104	8-729-801-93	TRANSISTOR 2SD1387
Q1105	8-729-801-83	TRANSISTOR 2SB1013
Q1106	9-986-159-01	TRANSISTOR 2SA1348
Q1107	8-729-806-28	TRANSISTOR 2SC3402
Q1151	8-729-224-63	TRANSISTOR 2SK246BL
Q1152	8-729-820-23	TRANSISTOR 2SC3330S
Q1201	8-729-820-23	TRANSISTOR 2SC3330S
Q1301	8-729-108-06	TRANSISTOR 2SC1841
Q1303	8-729-806-16	TRANSISTOR 2SA1346
Q1351	8-729-108-06	TRANSISTOR 2SC1841
Q1401	8-729-820-23	TRANSISTOR 2SC3330S
Q1402	8-729-820-23	TRANSISTOR 2SC3330S
Q1403	8-729-804-67	TRANSISTOR 2SB1133-R
Q2001	8-729-820-23	TRANSISTOR 2SC3330S
Q2002	8-729-820-23	TRANSISTOR 2SC3330S
Q2003	8-729-820-23	TRANSISTOR 2SC3330S

RESISTOR

R1001	1-249-441-11	CARBON	100K	5%	1/4W
R1002	1-249-417-11	CARBON	1K	5%	1/4W
R1003	1-249-441-11	CARBON	100K	5%	1/4W
R1004	1-249-416-11	CARBON	820	5%	1/4W
R1005	1-247-897-11	CARBON	560K	5%	1/4W
R1006	1-249-437-11	CARBON	47K	5%	1/4W
R1007	1-249-441-11	CARBON	100K	5%	1/4W
R1008	1-249-409-11	CARBON	220	5%	1/4W
R1009	1-249-409-11	CARBON	220	5%	1/4W
R1010	1-249-417-11	CARBON	1K	5%	1/4W
R1011	1-249-417-11	(WG, IT)....CARBON	1K	5%	1/4W
R1012	1-247-903-00	CARBON	1M	5%	1/4W
R1013	1-249-413-11	CARBON	470	5%	1/4W
R1014	1-247-897-11	CARBON	560K	5%	1/4W
R1015	1-249-417-11	CARBON	1K	5%	1/4W
R1017	1-249-417-11	CARBON	1K	5%	1/4W
R1020	1-247-903-00	CARBON	1M	5%	1/4W
R1021	1-247-897-11	CARBON	560K	5%	1/4W
R1022	1-247-897-11	CARBON	560K	5%	1/4W
R1023	1-247-897-11	CARBON	560K	5%	1/4W
R1033	1-249-433-11	CARBON	22K	5%	1/4W
R1034	1-249-441-11	CARBON	100K	5%	1/4W
R1035	1-249-417-11	CARBON	1K	5%	1/4W
R1040	1-249-433-11	CARBON	22K	5%	1/4W
R1041	1-249-433-11	CARBON	22K	5%	1/4W
R1042	1-249-433-11	CARBON	22K	5%	1/4W
R1043	1-249-433-11	CARBON	22K	5%	1/4W
R1044	1-247-901-11	CARBON	820K	5%	1/4W
R1045	1-249-433-11	CARBON	22K	5%	1/4W
R1046	1-249-425-11	CARBON	4.7K	5%	1/4W
R1051	1-249-441-11	CARBON	100K	5%	1/4W
R1052	1-249-417-11	CARBON	1K	5%	1/4W

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No	Part No.	Description			
C1203	1-124-464-11	ELECT	0.22MF	20%	50V
C1204	1-124-234-00	ELECT	22MF	20%	16V
C1205	1-161-327-00	CERAMIC	0.0033MF	20%	16V
C1206	1-124-589-11	ELECT	47MF	20%	16V
C1207	1-162-596-00	CERAMIC	0.022MF		25V
C1301	1-162-286-31	CERAMIC	220PF	10%	50V
C1302	1-123-875-11	ELECT	10MF	20%	50V
C1304	1-162-286-31	CERAMIC	220PF	10%	50V
C1305	1-126-176-11	ELECT	220MF	20%	6.3V
C1306	1-124-910-11	ELECT	47MF	20%	50V
C1307	1-124-122-11	ELECT	100MF	20%	50V
C1309	1-124-908-11	ELECT	22MF	20%	50V
C1310	1-130-493-00	MYLAR	0.068MF	5%	50V
C1311	1-130-493-00	MYLAR	0.068MF	5%	50V
C1312	1-126-176-11	ELECT	220MF	20%	6.3V
C1313	1-126-176-11	ELECT	220MF	20%	6.3V
C1314	1-123-875-11	ELECT	10MF	20%	50V
C1315	1-126-101-11	ELECT	100MF	20%	16V
C1316	1-130-493-00	(WG, IT)....MYLAR	0.068MF	5%	50V
C1317	1-130-493-00	(WG, IT)....MYLAR	0.068MF	5%	50V
C1318	1-161-379-00	(WG, IT)....CERAMIC	0.01MF	20%	16V
C1319	1-161-494-00	CERAMIC	0.022MF		25V
C1351	1-162-286-31	CERAMIC	220PF	10%	50V
C1352	1-123-875-11	ELECT	10MF	20%	50V
C1354	1-162-286-31	CERAMIC	220PF	10%	50V
C1355	1-126-176-11	ELECT	220MF	20%	6.3V
C1356	1-124-910-11	ELECT	47MF	20%	50V
C1357	1-124-122-11	ELECT	100MF	20%	50V
C1358	1-130-495-00	MYLAR	0.1MF	5%	50V
C1360	1-130-493-00	MYLAR	0.068MF	5%	50V
C1361	1-130-493-00	MYLAR	0.068MF	5%	50V
C1366	1-130-493-00	(WG, IT)....MYLAR	0.068MF	5%	50V
C1367	1-130-493-00	(WG, IT)....MYLAR	0.068MF	5%	50V
C1368	1-161-379-00	(WG, IT)....CERAMIC	0.01MF	20%	16V
C1401 ⚠	1-161-744-00	CERAMIC	0.01MF		400V
C1402	1-102-355-00	CERAMIC	0.01MF		250V
C1403	1-102-355-00	CERAMIC	0.01MF		250V
C1404	1-124-912-11	ELECT	330MF	20%	50V
C1405	1-126-224-11	ELECT	4700MF	20%	42V
C1406	1-126-224-11	ELECT	4700MF	20%	42V
C1407	1-126-103-11	ELECT	470MF	20%	16V
C1408	1-124-563-11	ELECT	2200MF	20%	25V
C1409	1-124-563-11	ELECT	2200MF	20%	25V
C1410	1-124-908-11	ELECT	22MF	20%	50V
C1411	1-124-122-11	ELECT	100MF	20%	50V
C1412	1-126-103-11	ELECT	470MF	20%	16V
C1413	1-126-103-11	ELECT	470MF	20%	16V
C1414	1-124-925-11	ELECT	2.2MF	20%	50V
C1415	1-124-556-11	(UK)....ELECT	2200MF	20%	16V
C1416	1-124-927-11	ELECT	4.7MF	20%	50V
C1417	1-161-377-00	(WG, IT)....CERAMIC	0.0047MF	30%	50V
C1418	1-161-377-00	(WG, IT)....CERAMIC	0.0047MF	30%	50V
C1421	1-101-005-00	CERAMIC	0.022MF		50V
C1422	1-101-005-00	CERAMIC	0.022MF		50V
C1423	1-101-005-00	CERAMIC	0.022MF		50V
C1424	1-126-101-11	ELECT	100MF	20%	10V
C2001	1-162-294-31	CERAMIC	0.001MF	10%	50V
C2002	1-124-477-11	ELECT	47MF	20%	16V
C2003	1-161-494-00	CERAMIC	0.022MF		25V
C2004	1-162-211-31	CERAMIC	33PF	5%	50V
C2005	1-162-211-31	CERAMIC	33PF	5%	50V
C2006	1-162-289-31	CERAMIC	390PF	10%	50V
C2101	1-161-374-11	CERAMIC	0.0015MF	20%	16V
C2102	1-124-908-11	ELECT	22MF	20%	50V
C2103	1-124-908-11	ELECT	22MF	20%	50V

Ref.No	Part No.	Description			
C2104	1-124-925-11	ELECT	2.2MF	20%	50V
C2105	1-162-219-31	CERAMIC	68PF	5%	50V
C2106	1-124-908-11	ELECT	22MF	20%	50V
C2107	1-130-488-00	MYLAR	0.027MF	5%	50V
C2108	1-130-488-00	MYLAR	0.027MF	5%	50V
C2109	1-162-219-31	CERAMIC	68PF	5%	50V
C2110	1-124-908-11	ELECT	22MF	20%	50V
C2111	1-124-925-11	ELECT	2.2MF	20%	50V
C2112	1-124-925-11	ELECT	2.2MF	20%	50V
C2113	1-161-379-00	CERAMIC	0.01MF	20%	16V
C2114	1-161-379-00	CERAMIC	0.01MF	20%	16V
C2115	1-162-219-31	CERAMIC	68PF	5%	50V
C2116	1-124-925-11	ELECT	2.2MF	20%	50V
C2117	1-161-327-00	CERAMIC	0.0033MF	20%	16V
C2118	1-161-327-00	CERAMIC	0.0033MF	20%	16V
C2119	1-162-219-31	CERAMIC	68PF	5%	50V
C2120	1-124-925-11	ELECT	2.2MF	20%	50V
C2121	1-161-327-00	CERAMIC	0.0033MF	20%	16V
C2122	1-161-327-00	CERAMIC	0.0033MF	20%	16V
C2123	1-162-219-31	CERAMIC	68PF	5%	50V
C2124	1-124-925-11	ELECT	2.2MF	20%	50V
C2125	1-161-327-00	CERAMIC	0.0033MF	20%	16V
C2126	1-161-327-00	CERAMIC	0.0033MF	20%	16V
C2127	1-162-219-31	CERAMIC	68PF	5%	50V
C2128	1-124-925-11	ELECT	2.2MF	20%	50V
C2131	1-124-925-11	ELECT	2.2MF	20%	50V
C2132	1-161-494-00	CERAMIC	0.022MF		25V
C2133	1-126-101-11	ELECT	100MF	20%	16V
CF2001	1-567-738-11	VIBRATOR, CERAMIC			
CN201	*1-564-506-11	PLUG, CONNECTOR 3P			
CN202	*1-564-511-41	PLUG, CONNECTOR 8P			
CN702	*1-564-510-11	PLUG, CONNECTOR 7P			
CN706	*1-564-340-51	PIN, CONNECTOR 6P			
CN1001	1-565-258-11	JACK, PIN 4P (PHONO, CD)			
CN1002	1-565-258-21	JACK, PIN 4P (DAT IN/OUT)			
CN1003	*1-566-858-11	SOCKET, CONNECTOR 11P (SYSTEM CONTROL 1)			
CN1201	1-565-117-11	JACK, LARGE TYPE (MIC)			
CN1301	1-507-983-11	JACK (LARGE TYPE) (HEADPHONES)			
CN1302	1-565-352-21	JACK, PIN 2P (SURROUND SPEAKER)			
CN1401 ⚠	.1-555-750-00	(AEP, WG, IT)....CORD, POWER			
CN1401 ⚠	.1-556-035-00	(UK)....CORD, POWER			
CN1402 ⚠	.1-526-794-11	(AEP, WG, IT)....OUTLET, AC			
CN1402 ⚠	.1-526-751-00	(UK)....OUTLET, AC			
CN1403 ⚠	.1-526-794-11	(AEP, WG, IT)....OUTLET, AC			
CN1404	*1-566-859-11	SOCKET, CONNECTOR 15P (SYSTEM CONTROL 2)			
CN1405	*1-566-210-11	(UK)....PIN, CONNECTOR 3P			
CNJ707	*1-564-341-71	PIN, CONNECTOR 7P			
CNP707	*1-566-452-11	HOUSING, CONNECTOR 7P			
CP2101	1-233-081-11	COMPOSITION CIRCUIT BLOCK			
CP2102	1-233-081-11	COMPOSITION CIRCUIT BLOCK			
CP2103	1-233-081-11	COMPOSITION CIRCUIT BLOCK			
CP2104	1-233-151-11	COMPOSITION CIRCUIT BLOCK			
CP2105	1-233-151-11	COMPOSITION CIRCUIT BLOCK			
CP2106	1-233-151-11	COMPOSITION CIRCUIT BLOCK			
D1001	1-806-937-11	DIODE GMA01			
D1002	1-806-937-11	DIODE GMA01			
D1003	1-806-937-11	DIODE GMA01			
D1004	8-719-001-09	DIODE UZL-9L3			
D1005	1-806-937-11	DIODE GMA01			
D1101	1-806-937-11	DIODE GMA01			
D1102	1-806-937-11	DIODE GMA01			
D1151	1-806-937-11	DIODE GMA01			

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No	Part No.	Description
D1152	1-806-937-11	DIODE GMA01
D1301	1-806-937-11	DIODE GMA01
D1302	1-806-937-11	DIODE GMA01
D1303	8-719-200-77	DIODE 10E2N
D1304	1-806-937-11	DIODE GMA01
D1305	1-806-937-11	DIODE GMA01
D1351	1-806-937-11	DIODE GMA01
D1401	8-719-302-38	DIODE RBV-602-01
D1402	8-719-200-77	DIODE 10E2N
D1403	8-719-200-77	DIODE 10E2N
D1404	8-719-200-77	DIODE 10E2N
D1405	8-719-200-77	DIODE 10E2N
D1406	8-719-200-77	DIODE 10E2N
D1407	8-719-200-77	DIODE 10E2N
D1408	8-719-911-50	DIODE HZ5C1
D1409	8-719-002-57	DIODE UZL-30H
D1410	8-719-160-23	DIODE RD5.1F-B2
D2001	1-807-689-11	DIODE SLP9070
D2002	1-807-689-11	DIODE SLP9070
D2003	8-719-969-90	DIODE SLP3070K
D2004	8-719-969-90	DIODE SLP3070K
D2005	8-719-969-90	DIODE SLP3070K
D2006	8-719-969-90	DIODE SLP3070K
D2007	8-719-969-90	DIODE SLP3070K
D2008	1-806-937-11	DIODE GMA01
D2009	1-806-937-11	DIODE GMA01
D2101	1-806-937-11	DIODE GMA01
D2102	1-806-937-11	DIODE GMA01
D2103	1-806-937-11	DIODE GMA01
D2104	1-806-937-11	DIODE GMA01
D2105	1-806-937-11	DIODE GMA01
D2106	1-806-937-11	DIODE GMA01
D2107	1-806-937-11	DIODE GMA01
D2108	1-806-937-11	DIODE GMA01
D2109	1-806-937-11	DIODE GMA01
D2110	1-806-937-11	DIODE GMA01
D2111	1-806-937-11	DIODE GMA01
D2112	1-806-937-11	DIODE GMA01
D2121	8-719-000-63	DIODE UZL-6M3
F1401 ⚠	1-532-259-00	FUSE, TIME-LAG
F1402 ⚠	1-532-259-00	FUSE, TIME-LAG
F1403 ⚠	1-532-203-00	FUSE, TIME-LAG
F1404 ⚠	1-532-203-00	FUSE, TIME-LAG
FL2001	1-519-441-11	INDICATOR TUBE, FLUORESCENT
IC1001	8-759-600-02	IC M5218LK
IC1002	8-759-800-37	IC LC4066BH
IC1003	8-759-802-52	IC LC7818
IC1101	8-759-600-02	IC M5218L
IC1102	8-759-602-04	IC M5226P
IC1152	8-759-602-04	IC M5226P
IC1301	8-749-941-52	IC STK4152II
IC1302	8-759-111-68	IC UPC1237HA
IC1401	8-759-604-32	IC M5F7810
IC1402	8-759-604-50	IC M5F7910
IC1403	8-759-604-33	(UK)....IC M5F7812
IC2001	8-759-800-07	IC LC6527CK-3467
IC2002	8-749-920-03	IC GP1U52
IC2101	8-759-600-02	IC M5218L
IC2102	8-759-600-02	IC M5218L
IC2103	8-759-600-02	IC M5218L
IC2104	8-759-820-07	IC LC7566
L1301	*1-420-872-00	COIL, AIR CORE (1.9UH)
L1351	*1-420-872-00	COIL, AIR CORE (1.9UH)
L1401	1-410-564-11	INDUCTOR 100UH

Ref.No	Part No.	Description
L1402	1-410-564-11	INDUCTOR 100UH
L1403	1-410-564-11	INDUCTOR 100UH
M1107	1-238-079-11	RES, VAR, CARBON (MOTOR) 100KX2
Q1001	8-729-107-98	TRANSISTOR 2SC3622A-L
Q1002	9-986-159-01	TRANSISTOR 2SA1348
Q1003	8-729-806-16	TRANSISTOR 2SA1346
Q1004	8-729-820-10	TRANSISTOR 2SA1317-SU
Q1005	8-729-806-28	TRANSISTOR 2SC3402
Q1006	8-729-820-23	TRANSISTOR 2SC3330S
Q1007	8-729-806-28	TRANSISTOR 2SC3402
Q1051	8-729-107-98	TRANSISTOR 2SC3622A-L
Q1101	8-729-224-63	TRANSISTOR 2SK246BL
Q1102	8-729-820-23	TRANSISTOR 2SC3330S
Q1103	9-986-159-01	TRANSISTOR 2SA1348
Q1104	8-729-801-93	TRANSISTOR 2SD1387
Q1105	8-729-801-83	TRANSISTOR 2SB1013
Q1106	9-986-159-01	TRANSISTOR 2SA1348
Q1107	8-729-806-28	TRANSISTOR 2SC3402
Q1151	8-729-224-63	TRANSISTOR 2SK246BL
Q1152	8-729-820-23	TRANSISTOR 2SC3330S
Q1201	8-729-820-23	TRANSISTOR 2SC3330S
Q1301	8-729-108-06	TRANSISTOR 2SC1841
Q1303	8-729-806-16	TRANSISTOR 2SA1346
Q1351	8-729-108-06	TRANSISTOR 2SC1841
Q1401	8-729-820-23	TRANSISTOR 2SC3330S
Q1402	8-729-820-23	TRANSISTOR 2SC3330S
Q1403	8-729-804-67	TRANSISTOR 2SB1133-R
Q2001	8-729-820-23	TRANSISTOR 2SC3330S
Q2002	8-729-820-23	TRANSISTOR 2SC3330S
Q2003	8-729-820-23	TRANSISTOR 2SC3330S

RESISTOR

R1001	1-249-441-11	CARBON	100K	5%	1/4W
R1002	1-249-417-11	CARBON	1K	5%	1/4W
R1003	1-249-441-11	CARBON	100K	5%	1/4W
R1004	1-249-416-11	CARBON	820	5%	1/4W
R1005	1-247-897-11	CARBON	560K	5%	1/4W
R1006	1-249-437-11	CARBON	47K	5%	1/4W
R1007	1-249-441-11	CARBON	100K	5%	1/4W
R1008	1-249-409-11	CARBON	220	5%	1/4W
R1009	1-249-409-11	CARBON	220	5%	1/4W
R1010	1-249-417-11	CARBON	1K	5%	1/4W
R1011	1-249-417-11	(WG, IT)....CARBON	1K	5%	1/4W
R1012	1-247-903-00	CARBON	1M	5%	1/4W
R1013	1-249-413-11	CARBON	470	5%	1/4W
R1014	1-247-897-11	CARBON	560K	5%	1/4W
R1015	1-249-417-11	CARBON	1K	5%	1/4W
R1017	1-249-417-11	CARBON	1K	5%	1/4W
R1020	1-247-903-00	CARBON	1M	5%	1/4W
R1021	1-247-897-11	CARBON	560K	5%	1/4W
R1022	1-247-897-11	CARBON	560K	5%	1/4W
R1023	1-247-897-11	CARBON	560K	5%	1/4W
R1033	1-249-433-11	CARBON	22K	5%	1/4W
R1034	1-249-441-11	CARBON	100K	5%	1/4W
R1035	1-249-417-11	CARBON	1K	5%	1/4W
R1040	1-249-433-11	CARBON	22K	5%	1/4W
R1041	1-249-433-11	CARBON	22K	5%	1/4W
R1042	1-249-433-11	CARBON	22K	5%	1/4W
R1043	1-249-433-11	CARBON	22K	5%	1/4W
R1044	1-247-901-11	CARBON	820K	5%	1/4W
R1045	1-249-433-11	CARBON	22K	5%	1/4W
R1046	1-249-425-11	CARBON	4.7K	5%	1/4W
R1051	1-249-441-11	CARBON	100K	5%	1/4W
R1052	1-249-417-11	CARBON	1K	5%	1/4W

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref.No	Part No.	Description			
R1053	1-249-441-11	CARBON	100K	5%	1/4W
R1054	1-249-416-11	CARBON	820	5%	1/4W
R1055	1-247-897-11	CARBON	560K	5%	1/4W
R1056	1-249-437-11	CARBON	47K	5%	1/4W
R1057	1-249-441-11	CARBON	100K	5%	1/4W
R1058	1-249-409-11	CARBON	220	5%	1/4W
R1059	1-249-409-11	CARBON	220	5%	1/4W
R1060	1-249-417-11	CARBON	1K	5%	1/4W
R1061	1-249-417-11	(WG, IT)....CARBON	1K	5%	1/4W
R1062	1-247-903-00	CARBON	1M	5%	1/4W
R1063	1-249-413-11	CARBON	470	5%	1/4W
R1064	1-247-897-11	CARBON	560K	5%	1/4W
R1065	1-249-417-11	CARBON	1K	5%	1/4W
R1067	1-249-417-11	CARBON	1K	5%	1/4W
R1070	1-247-903-00	CARBON	1M	5%	1/4W
R1071	1-247-897-11	CARBON	560K	5%	1/4W
R1072	1-247-897-11	CARBON	560K	5%	1/4W
R1073	1-247-897-11	CARBON	560K	5%	1/4W
R1083	1-249-433-11	CARBON	22K	5%	1/4W
R1085	1-249-417-11	CARBON	1K	5%	1/4W
R1090	1-249-429-11	CARBON	10K	5%	1/4W
R1091	1-249-429-11	CARBON	10K	5%	1/4W
R1092	1-249-441-11	CARBON	100K	5%	1/4W
R1093	1-249-417-11	CARBON	1K	5%	1/4W
R1094	1-249-433-11	CARBON	22K	5%	1/4W
R1095	1-249-433-11	CARBON	22K	5%	1/4W
R1096	1-249-433-11	CARBON	22K	5%	1/4W
R1097	1-249-433-11	CARBON	22K	5%	1/4W
R1098	1-249-433-11	CARBON	22K	5%	1/4W
R1101	1-249-441-11	CARBON	100K	5%	1/4W
R1102	1-249-417-11	CARBON	1K	5%	1/4W
R1103	1-249-441-11	CARBON	100K	5%	1/4W
R1104	1-249-425-11	CARBON	4.7K	5%	1/4W
R1105	1-249-425-11	CARBON	4.7K	5%	1/4W
R1106	1-249-441-11	CARBON	100K	5%	1/4W
R1107	1-247-903-00	CARBON	1M	5%	1/4W
R1108	1-249-428-11	CARBON	8.2K	5%	1/4W
R1109	1-249-433-11	CARBON	22K	5%	1/4W
R1110	1-249-422-11	CARBON	2.7K	5%	1/4W
R1111	1-247-895-00	CARBON	470K	5%	1/4W
R1112	1-249-427-11	CARBON	6.8K	5%	1/4W
R1113	1-249-412-11	CARBON	390	5%	1/4W
R1114	1-249-405-11	CARBON	100	5%	1/4W
R1115	1-249-429-11	CARBON	10K	5%	1/4W
R1118	1-249-425-11	CARBON	4.7K	5%	1/4W
R1120	1-249-425-11	CARBON	4.7K	5%	1/4W
R1121	1-249-417-11	CARBON	1K	5%	1/4W
R1122	1-249-417-11	CARBON	1K	5%	1/4W
R1123	1-249-394-11	CARBON	12	5%	1/4W
R1124	1-249-394-11	CARBON	12	5%	1/4W
R1125	1-249-420-11	CARBON	1.8K	5%	1/4W
R1127	1-247-727-11	CARBON	10	5%	1/2W
R1128	1-247-727-11	CARBON	10	5%	1/2W
R1151	1-249-441-11	CARBON	100K	5%	1/4W
R1152	1-249-417-11	CARBON	1K	5%	1/4W
R1153	1-249-441-11	CARBON	100K	5%	1/4W
R1154	1-249-425-11	CARBON	4.7K	5%	1/4W
R1155	1-249-425-11	CARBON	4.7K	5%	1/4W
R1156	1-249-441-11	CARBON	100K	5%	1/4W
R1157	1-247-903-00	CARBON	1M	5%	1/4W
R1158	1-249-428-11	CARBON	8.2K	5%	1/4W
R1159	1-249-433-11	CARBON	22K	5%	1/4W
R1160	1-249-422-11	CARBON	2.7K	5%	1/4W
R1161	1-247-895-00	CARBON	470K	5%	1/4W
R1162	1-249-427-11	CARBON	6.8K	5%	1/4W

Ref.No	Part No.	Description				
R1163	1-249-412-11	CARBON	390	5%	1/4W	
R1164	1-249-405-11	CARBON	100	5%	1/4W	
R1170	1-249-425-11	CARBON	4.7K	5%	1/4W	
R1201	1-249-441-11	CARBON	100K	5%	1/4W	
R1202	1-249-441-11	CARBON	100K	5%	1/4W	
R1203	1-249-417-11	CARBON	1K	5%	1/4W	
R1204	1-249-426-11	CARBON	5.6K	5%	1/4W	
R1205	1-249-431-11	CARBON	15K	5%	1/4W	
R1206	1-249-441-11	CARBON	100K	5%	1/4W	
R1207	1-249-421-11	CARBON	2.2K	5%	1/4W	
R1208	1-249-417-11	CARBON	1K	5%	1/4W	
R1303	1-249-417-11	CARBON	1K	5%	1/4W	
R1304	1-249-438-11	CARBON	56K	5%	1/4W	
R1305	1-249-414-11	CARBON	560	5%	1/4W	
R1306	1-249-438-11	CARBON	56K	5%	1/4W	
R1307	1-247-756-11	CARBON	2.2K	5%	1/2W	
R1308	1-247-756-11	CARBON	2.2K	5%	1/2W	
R1309⚠	1-212-881-11	FUSIBLE	100	5%	1/4W	F
R1310	1-247-752-11	CARBON	1K	5%	1/2W	
R1311	1-247-752-11	CARBON	1K	5%	1/2W	
R1312	1-249-417-11	CARBON	1K	5%	1/4W	
R1313	1-249-431-11	CARBON	15K	5%	1/4W	
R1314	1-217-156-00	RES, METAL PLATE	0.22		5W	
R1315	1-249-441-11	CARBON	100K	5%	1/4W	
R1316	1-247-727-11	CARBON	10	5%	1/2W	
R1317	1-247-727-11	CARBON	10	5%	1/2W	
R1318	1-249-438-11	CARBON	56K	5%	1/4W	
R1319	1-249-429-11	CARBON	10K	5%	1/4W	
R1320	1-249-441-11	CARBON	100K	5%	1/4W	
R1321	1-249-431-11	CARBON	15K	5%	1/4W	
R1322	1-249-437-11	CARBON	47K	5%	1/4W	
R1323	1-247-764-11	CARBON	10K	5%	1/2W	
R1324⚠	1-216-430-11	METAL OXIDE	390	5%	1W	F
R1325	1-247-750-11	CARBON	680	5%	1/2W	
R1326	1-247-727-11	(WG, IT)....CARBON	10	5%	1/2W	
R1353	1-249-417-11	CARBON	1K	5%	1/4W	
R1354	1-249-438-11	CARBON	56K	5%	1/4W	
R1355	1-249-414-11	CARBON	560	5%	1/4W	
R1356	1-249-438-11	CARBON	56K	5%	1/4W	
R1357	1-247-756-11	CARBON	2.2K	5%	1/2W	
R1358	1-247-756-11	CARBON	2.2K	5%	1/2W	
R1359⚠	1-212-881-11	FUSIBLE	100	5%	1/4W	F
R1362	1-249-417-11	CARBON	1K	5%	1/4W	
R1363	1-249-431-11	CARBON	15K	5%	1/4W	
R1364	1-217-156-00	RES, METAL PLATE	2			
R1365	1-249-441-11	CARBON	100K	5%	1/4W	
R1366	1-247-727-11	CARBON	10	5%	1/2W	
R1367	1-247-727-11	CARBON	10	5%	1/2W	
R1368	1-249-437-11	CARBON	47K	5%	1/4W	
R1375	1-247-750-11	CARBON	680	5%	1/2W	
R1376	1-247-727-11	(WG, IT)....CARBON	10	5%	1/2W	
R1401	1-249-409-11	CARBON	220	5%	1/4W	
R1402	1-249-422-11	CARBON	2.7K	5%	1/4W	
R1403	1-249-428-11	CARBON	8.2K	5%	1/4W	
R1404	1-249-425-11	CARBON	4.7K	5%	1/4W	
R1405	1-249-429-11	CARBON	10K	5%	1/4W	
R1406	1-249-441-11	CARBON	100K	5%	1/4W	
R1407	1-249-426-11	CARBON	5.6K	5%	1/4W	
R1408⚠	1-212-934-00	FUSIBLE	1	5%	1/2W	F
R1409⚠	1-212-849-00	FUSIBLE	4.7	5%	1/4W	F
R1410⚠	1-212-849-00	FUSIBLE	4.7	5%	1/4W	F
R2001	1-247-746-11	CARBON	390	5%	1/2W	
R2002	1-247-749-11	CARBON	560	5%	1/2W	
R2003	1-247-749-11	CARBON	560	5%	1/2W	
R2004	1-247-749-11	CARBON	560	5%	1/2W	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref.No	Part No.	Description			
R2005	1-247-749-11	CARBON	560	5%	1/2W
R2006	1-247-749-11	CARBON	560	5%	1/2W
R2007	1-249-429-11	CARBON	10K	5%	1/4W
R2010	1-249-417-11	CARBON	1K	5%	1/4W
R2011	1-249-417-11	CARBON	1K	5%	1/4W
R2012	1-249-429-11	CARBON	10K	5%	1/4W
R2013	1-249-429-11	CARBON	10K	5%	1/4W
R2101	1-249-409-11	CARBON	220	5%	1/4W
R2121	1-249-441-11	CARBON	100K	5%	1/4W
R2122	1-249-432-11	CARBON	18K	5%	1/4W
R2123	1-249-441-11	CARBON	100K	5%	1/4W
R2124	1-247-903-00	CARBON	1M	5%	1/4W
R2125	1-249-441-11	CARBON	100K	5%	1/4W
R2126	1-249-417-11	CARBON	1K	5%	1/4W
R2127	1-249-405-11	CARBON	100	5%	1/4W
R2128	1-247-885-00	CARBON	180K	5%	1/4W
R2129	1-249-429-11	CARBON	10K	5%	1/4W
R2130	1-249-412-11	CARBON	390	5%	1/4W
R2131	1-249-441-11	CARBON	100K	5%	1/4W
R2132	1-249-423-11	CARBON	3.3K	5%	1/4W
R2133	1-247-903-00	CARBON	1M	5%	1/4W
R2134	1-247-903-00	CARBON	1M	5%	1/4W
R2135	1-249-441-11	CARBON	100K	5%	1/4W
R2136	1-249-440-11	CARBON	82K	5%	1/4W
R2137	1-249-423-11	CARBON	3.3K	5%	1/4W
R2138	1-247-901-11	CARBON	820K	5%	1/4W
R2139	1-249-441-11	CARBON	100K	5%	1/4W
R2140	1-249-439-11	CARBON	68K	5%	1/4W
R2141	1-249-423-11	CARBON	3.3K	5%	1/4W
R2142	1-247-899-11	CARBON	680K	5%	1/4W
R2143	1-249-441-11	CARBON	100K	5%	1/4W
R2144	1-249-433-11	CARBON	22K	5%	1/4W
R2145	1-249-417-11	CARBON	1K	5%	1/4W
R2146	1-247-887-00	CARBON	220K	5%	1/4W
R2147	1-249-441-11	CARBON	100K	5%	1/4W
R2148	1-249-426-11	CARBON	5.6K	5%	1/4W
R2149	1-249-439-11	CARBON	68K	5%	1/4W
R2150	1-249-413-11	CARBON	470	5%	1/4W
R2151	1-249-417-11	CARBON	1K	5%	1/4W
R2152	1-249-441-11	CARBON	100K	5%	1/4W
R2153	1-249-441-11	CARBON	100K	5%	1/4W
R2175	1-249-441-11	CARBON	100K	5%	1/4W
RV1101	1-238-065-21	RES, VAR, SLIDE 250K/250K (GEQ 100Hz)			
RV1102	1-238-065-21	RES, VAR, SLIDE 250K/250K (GEQ 330Hz)			
RV1103	1-238-065-21	RES, VAR, SLIDE 250K/250K (GEQ 1KHz)			
RV1104	1-238-065-21	RES, VAR, SLIDE 250K/250K (GEQ 3.3KHz)			
RV1105	1-238-065-21	RES, VAR, SLIDE 250K/250K (GEQ 10KHz)			
RV1106	1-237-882-11	RES, VAR, CARBON 100K (BALANCE)			
RV1107	1-238-079-11	RES, VAR, CARBON(MOTOR) 100KX2 (VOLUME)			
RV1201	1-238-100-11	RES, VAR, CARBON 100K/100K (MIC LEVEL)			
RY1301	1-515-501-00	RELAY			
S1101	1-571-292-11	SWITCH, PUSH (1 KEY) (DOL)			
S1102	1-571-292-11	SWITCH, PUSH (1 KEY) (SURROUND)			
S1401 ⚠	1-554-920-11	SWITCH, PUSH (AC POWER) (1 KEY) (POWER)			
S2001	1-554-303-21	SWITCH, KEY BOARD (EQUALIZER RECORDING)			
S2002	1-554-303-21	SWITCH, KEY BOARD (PHONO)			
S2003	1-554-303-21	SWITCH, KEY BOARD (TUNER)			
S2004	1-554-303-21	SWITCH, KEY BOARD (CD)			
S2005	1-554-303-21	SWITCH, KEY BOARD (TAPE)			
S2006	1-554-303-21	SWITCH, KEY BOARD (DAT)			
T1401 ⚠	1-449-369-11	TRANSFORMER, POWER			
TM1301	1-536-705-00	TERMINAL BOARD (SP) (SPEAKER)			

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

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Sony Corporation
Audio Group

Published by A/V Engineering Service Dept.

TC-D70

SERVICE MANUAL

AEP Model
UK Model

This set is the cassette deck Section in XO-D70/XO-D70CD.

SPECIFICATIONS

Recording system	4-track 2-channel stereo
Frequency response	DOLBY NR OFF (DIN) With TYPE II cassette (Sony UX-S) 40 to 14,000 Hz ± 3 dB With TYPE I cassette (Sony HF-S) 40 to 13,000 Hz ± 3 dB
Wow and flutter	± 0.2% (DIN)
Dimensions	Approx. 355 × 130 × 305 mm (w/h/d) (14 × 5¹/₈ × 12¹/₈ inches) Incl. projecting parts and controls
Weight	Approx. 3.6 kg (7 lb 15 oz)

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol DD are trademarks of Dolby Laboratories Licensing Corporation.

Model Name Using Similar Mechanism	DXA-D50
Tape Transport Mechanism Type	DECK A: TCM-170RA 1 DECK B: TCM-170RB 1

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

MICROFILM

STEREO CASSETTE DECK

SONY®

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GENERAL

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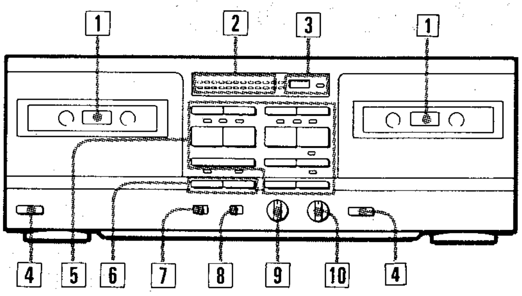
1-1. PARTS IDENTIFICATION



- [1] **Cassette holders**
- [2] **Level meters**
- [3] **Tape COUNTER and RESET button (for only deck B)**
- [4] **≜ EJECT buttons**
- [5] **Tape operation buttons and indicators**
  - ◀◀Leftward fast winding
  - ▶▶ Rightward fast winding
  - ◁ Reverse play
  - ▷ Forward play
  - ■ Stop
  - ❚❚ Pause
  - ○ Record muting (only deck B)
  - REC (record, for only deck B) (This button corresponds to the ● button on the remote commander.)
- [6] **SYNCHRO DUBBING speed select buttons and indicators**
- [7] **DIRECTION MODE selector**
- [8] **DOLBY NR* (Noise Reduction) switch**
- [9] **BALANCE control**
- [10] **REC (recording) LEVEL control**

SECTION 2
MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured alcohol-moistened swab:
   - Record/playback head pinch roller
   - erase head rubber belt
   - capstan idlers
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

2-1. TORQUE MEASUREMENT

Mode	Torque Motor	Torque
FWD	CQ-102C	30−70g•cm (0.41−0.97oz•inch)
FWD back tension	CQ-102C	2−6g•cm (0.03−0.08oz•inch)
REV	CQ-102RB	30−70g•cm (0.41−0.97oz•inch)
REV back tension	CQ-102RB	2−6g•cm (0.03−0.08oz•inch)
FE, REW	CQ-201B	90−160g•cm (1.25−2.22oz•inch)

SECTION 3
ELECTRICAL ADJUSTMENTS

Note: The adjustment should be performed in the order given in this service manual.
The adjustments should be performed for both L-CH and R-CH.

- Set the TAPE switches according to the tape as follows.

Tape	Tape Switch
CS-17	TYPE I
CS-26	TYPE II
CS-42	TYPE IV

- Switches and controls should be set as follows unless otherwise specified.
  DOLBY NR switch: OFF
- Standard Record:
  Deliver the standard input signal level to the input jack and set the REC LEVEL control to obtain the standard output signal level.

Standard Input Level

INPUT terminal	LINE IN
source impedance	10kΩ
input level	0.25V (−10dB)

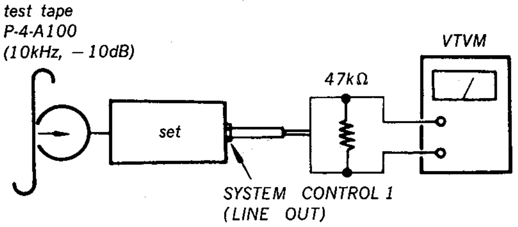
Standard Output Level

OUTPUT terminal	LINE OUT
load impedance	47kΩ
output level	0.435V (−5dB)

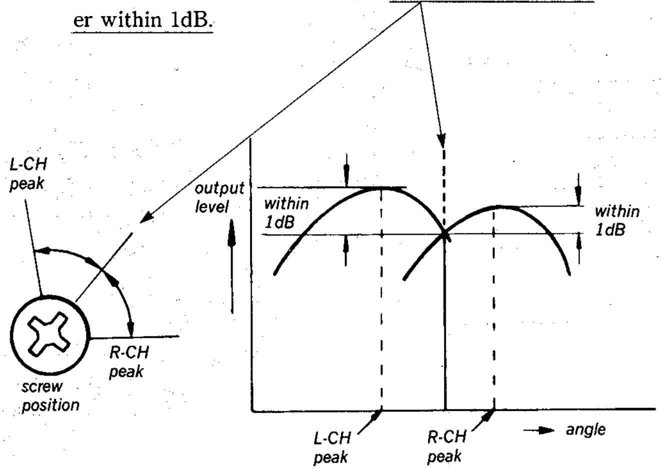
3-1. RECORD/PLAYBACK HEAD AZIMUTH ADJUSTMENT DECK A DECK B

Procedure:

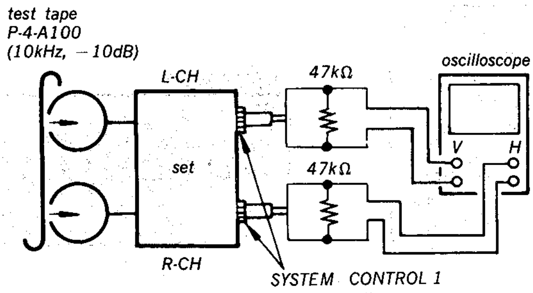
1. Mode: playback

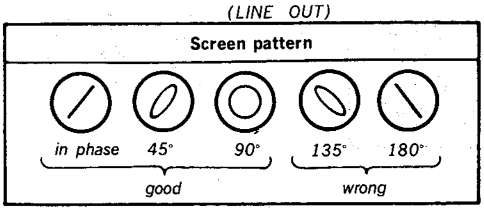

test tape
P-4-A100
(10kHz, −10dB)
set
47kΩ
VTVM
SYSTEM CONTROL 1
(LINE OUT)

2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match togerther within 1dB.


L-CH
peak
output
level
within
1dB
within
1dB
R-CH
peak
screw
position
L-CH
peak
R-CH
peak
angle

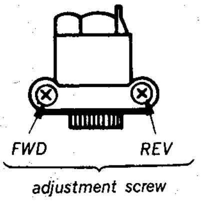
3. Phase Check
   Mode: playback


test tape
P-4-A100
(10kHz, −10dB)
L-CH
47kΩ
oscilloscope
set
47kΩ
V
H
R-CH
SYSTEM CONTROL 1
(LINE OUT)


Screen pattern
in phase
45°
90°
135°
180°
good
wrong

4. Repeat steps 1—3 in REV playback mode.
5. After the adjustment, lock the screws with locking compound.

Adjustment Location:

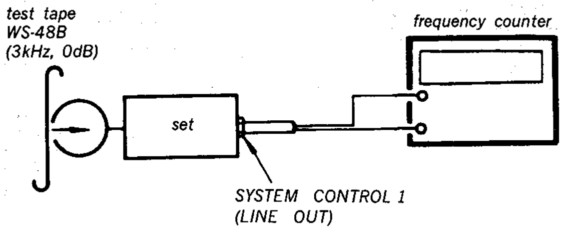

FWD
REV
adjustment screw

3-2. TAPE SPEED ADJUSTMENT

DECK A DECK B

Procedure:

Mode: playback


test tape
WS-48B
(3kHz, 0dB)
frequency counter
set
SYSTEM CONTROL 1
(LINE OUT)

(High speed adjustment)
1. short the CN801
2. Playback WS-48B (Tape top portion) in High speed mode.
3. Adjust the deck A (H), deck B (H) so that at this time the frequency counter reads 5920Hz±40Hz.

(Normal speed adjustment)
1. Open the CN801
2. Playback WS-48B (Tape top portion) in Normal speed mode.
3. Adjustment the deck A (L), deck B (L) so that at this time the frequency counter reads 2960±20Hz.

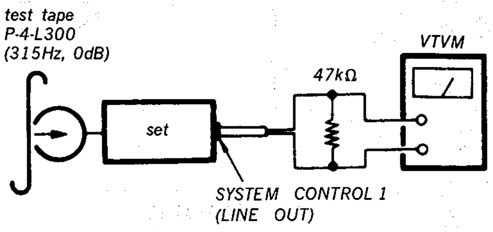
frequency difference between the frequency of deck A and deck B should be within 1.5%.

3-3. PLAYBACK LEVEL ADJUSTMENT

DECK A DECK B

Procedure:

Mode: playback


test tape
P-4-L300
(315Hz, 0dB)
VTVM
47kΩ
set
SYSTEM CONTROL 1
(LINE OUT)

Adjustment the RV41-A (L-ch), RV61-A (R-ch) of Deck A and RV41-B (L-ch), RV61-B (R-ch) of Deck B.

Specification:

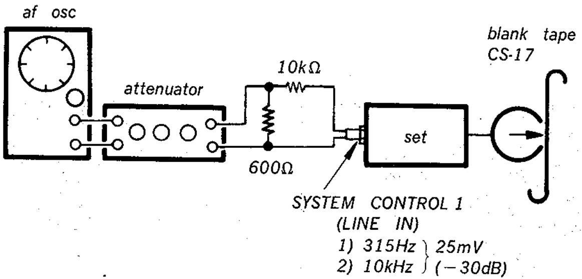
LINE OUT level: 0.34 to 0.49V (−6 to −4dB)

Level difference between channels: less than 0.5dB Check that the LINE OUT level does not change in playback mode while changing the mode from playback to stop several times.

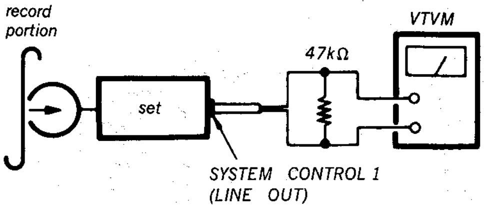
3-4. RECORD BIAS ADJUSTMENT DECK B

Proocedure:

1. Mode: record monitor


af osc
attenuator
10kΩ
600Ω
set
blank tape
CS-17
SYSTEM CONTROL 1
(LINE IN)
1) 315Hz
2) 10kHz
25mV
(−30dB)

2. Mode: playback


record
portion
VTVM
47kΩ
set
SYSTEM CONTROL 1
(LINE OUT)

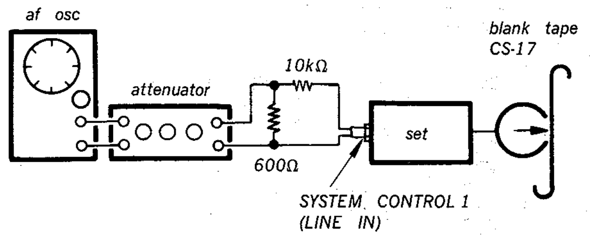
Playback the tape recorded in step 1.

Confirm that the LINE OUT level of 10kHz signal is 0 ± 0.5dB relative to that of 315Hz If not, adjust the RV 42 (L-ch), RV62 (R-ch) and repeat steps 1 and 2.

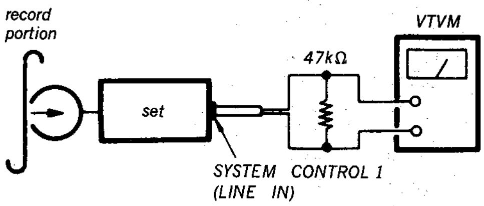
3-5. RECORD LEVEL ADJUSTMENT **DECK B**

Procedure:

1. Mode: record monitor


af osc
attenuator
10kΩ
600Ω
set
blank tape
CS-17
SYSTEM CONTROL 1
(LINE IN)
315Hz, 0.25V (−10dB)

2. Mode: playback


record
portion
set
47kΩ
VTVM
SYSTEM CONTROL 1
(LINE IN)

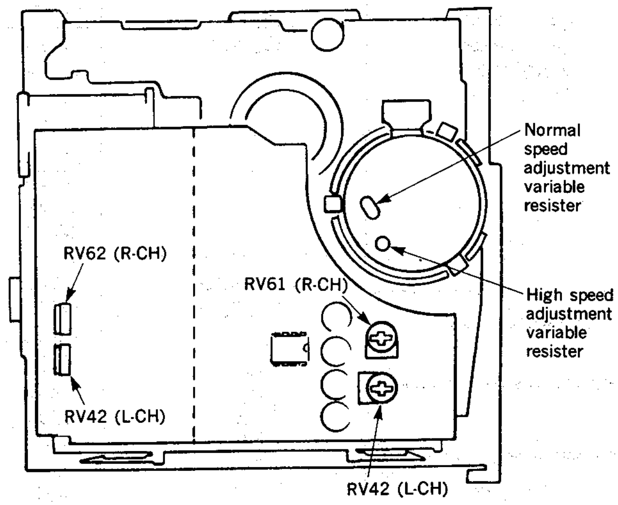
Adjust RV101 (L-CH), RV201 (R-CH).

Specification:

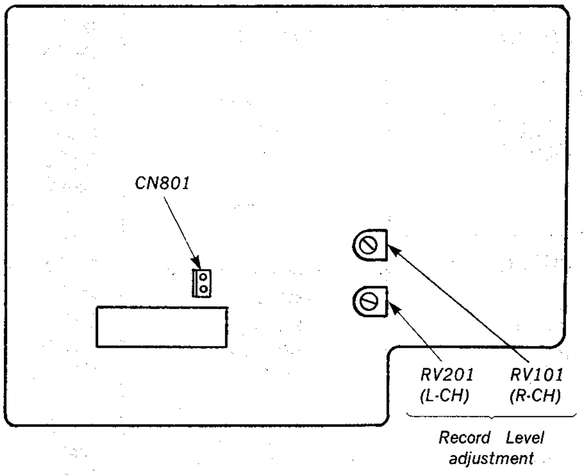
LINE OUT level: 0.41 to 0.46V
(−5.5 to −4.5dB)

Adjustment Location:

—MD board—

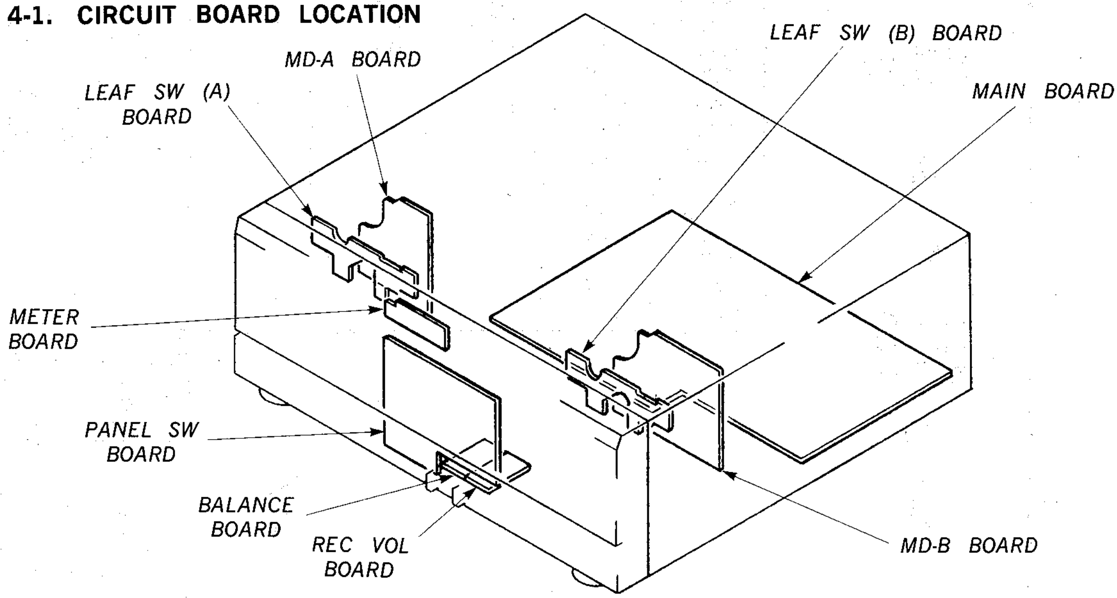

Normal speed adjustment variable resister
High speed adjustment variable resister
RV62 (R-CH)
RV61 (R-CH)
RV42 (L-CH)
RV42 (L-CH)

— main board —


CN801
RV201
(L-CH)
RV101
(R-CH)
Record Level
adjustment

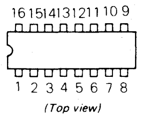
SECTION 4 DIAGRAMS

4-1. CIRCUIT BOARD LOCATION

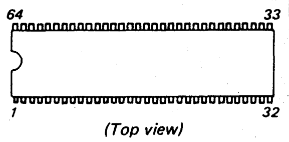

LEAF SW (B) BOARD
MD-A BOARD
LEAF SW (A) BOARD
MAIN BOARD
METER BOARD
PANEL SW BOARD
BALANCE BOARD
REC VOL BOARD
MD-B BOARD

4-2. SEMICONDUCTOR LEAD LAYOUTS

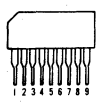
CXA1100P
CXA1198P
M4053BP
TC4052BP


16 15 14 13 12 11 10 9
1 2 3 4 5 6 7 8
(Top view)

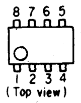
CXP5048H-127S


64
33
1
32
(Top view)

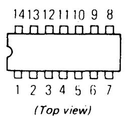
IR2E31A



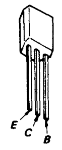
LA6458D


8 7 6 5
1 2 3 4
(Top view)

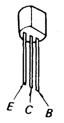
M4066BP


14 13 12 11 10 9 8
1 2 3 4 5 6 7
(Top view)

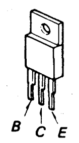
2SA1317-SU
2SA1345
2SA1348
2SC3330
2SC3399
2SC3901



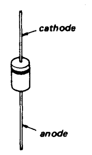
2SB1013
2SD1387



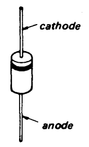
2SB1133-R
2SD1666-R



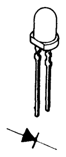
GMA-01


cathode
anode

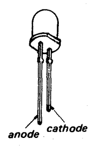
UZL-6H2
UZL-6L1
UZL-9L2
10E2N


cathode
anode

MPY3371X
MVR3361X



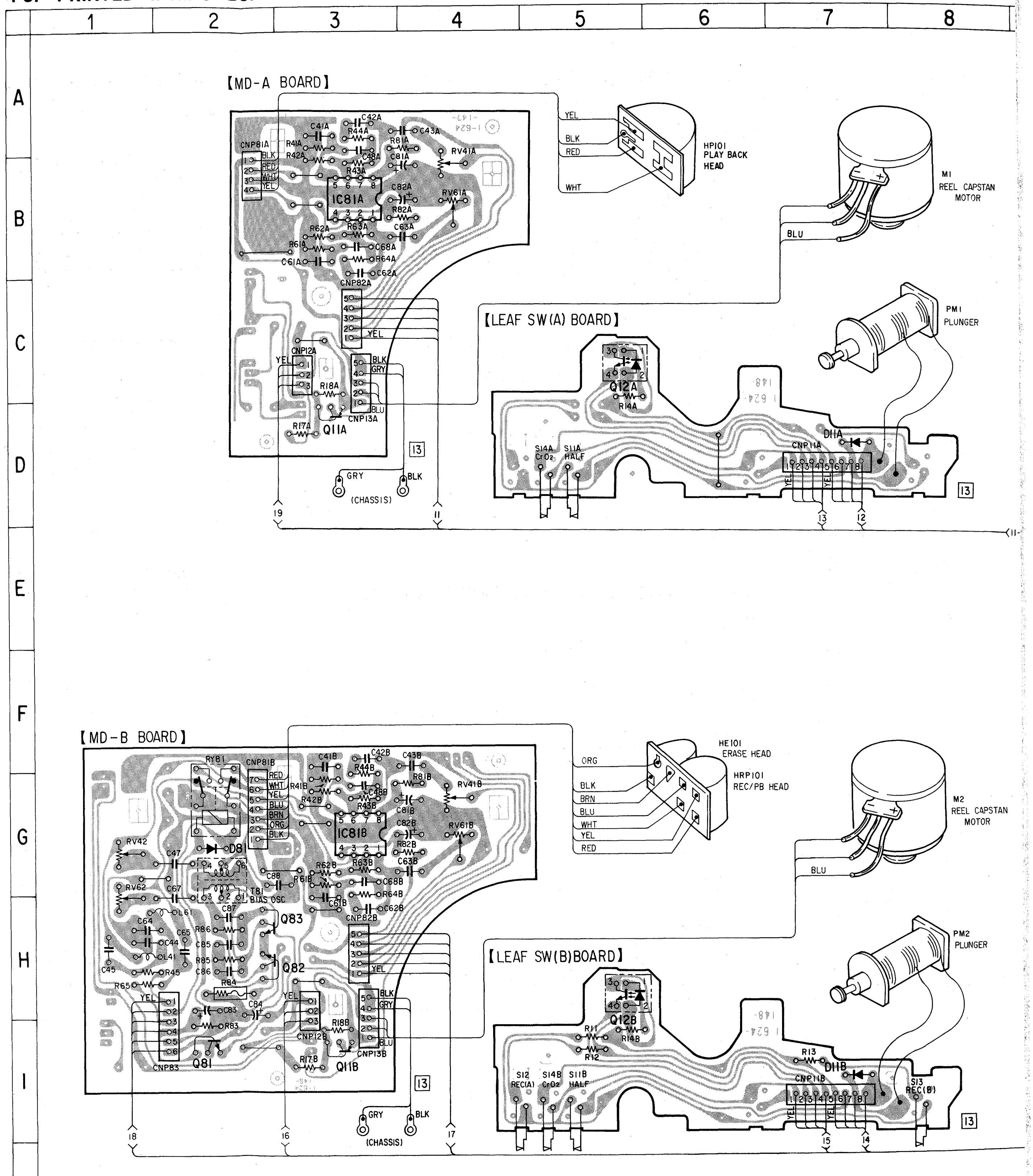
SLP3070K
SLP4070
SLP9070

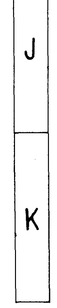

anode
cathode

- **Semiconductor Lead Layouts**

Ref. No.	Location	Ref. No.	Location
D11A	D-7	Q11A	D-3
D11B	I-7	Q11B	I-3
D81	G-2	Q12A	C-5
D101	I-14	Q12B	H-5
D102	I-14	Q81	I-2
D103	I-15	Q82	I-2
D104	I-15	Q83	I-2
D105	I-15	Q101	B-13
D106	I-16	Q102	D-11
D201	I-14	Q103	E-12
D202	I-14	Q104	B-14
D203	I-15	Q201	C-13
D204	I-15	Q202	C-11
D205	I-15	Q203	F-12
D206	I-16	Q204	B-16
D501	F-11	Q501	B-14
D502	G-14	Q502	B-14
D601	I-10	Q503	F-11
D602	I-10	Q504	F-11
D603	J-10	Q701	B-15
D604	J-10	Q702	A-17
D605	J-10	Q703	C-17
D606	I-12	Q704	D-17
D607	I-12	Q705	D-16
D608	J-12	Q706	D-16
D609	J-12	Q707	D-16
D610	J-12	Q708	D-17
D701	B-18	Q801	F-18
D702	B-18	Q802	F-18
D703	B-18	Q803	E-17
D704	B-18	Q804	E-17
D705	B-18	Q805	E-17
D706	B-19	Q806	E-18
D707	A-17	Q807	E-15
D708	B-17	Q808	F-15
D709	D-16	Q809	E-15
D801	E-17	Q810	E-16
D802	E-16	Q811	G-16
D803	F-15	Q812	G-17
D805	G-16	Q813	G-15
		Q814	G-15
IC81A	B-2	Q815	G-15
IC81B	G-3	Q816	F-15
IC101	C-15	Q817	G-15
IC201	C-16		
IC501	B-10		
IC502	B-13		
IC503	B-12		
IC504	D-10		
IC505	D-13		
IC506	F-12		
IC507	F-10		
IC801	G-16		
IC802	G-18		

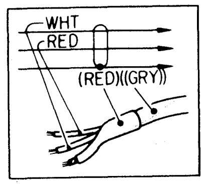
4-3. PRINTED WIRING BOARD


1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
[MD-A BOARD]
CNP81A
C41A
C42A
C43A
R41A
R42A
R44A
R81A
C81A
C82A
R43A
RV41A
RV61A
IC81A
R82A
R62A
R63A
C63A
R61A
C61A
C68A
R64A
C62A
CNP82A
CNP12A
R18A
R17A
Q11A
CNP13A
GRY
BLK
(CHASSIS)
YEL
RED
WHT
BLU
HP101
PLAY BACK
HEAD
M1
REEL CAPSTAN
MOTOR
PM1
PLUNGER
[LEAF SW(A) BOARD]
Q12A
R14A
D11A
CNP11A
S14A
CrO2
S11A
HALF
13
19
11
12
[MD-B BOARD]
RY81
CNP81B
C41B
C42B
C43B
R41B
R42B
R44B
R81B
C81B
C82B
R43B
RV41B
RV61B
IC81B
R82B
R62B
R63B
C63B
R61B
C61B
C68B
R64B
C62B
CNP82B
RV42
RV62
C47
D81
T81
BIAS OSC
C87
Q83
C64
C44
C65
L41
R45
C45
R65
R86
C85
R85
C86
R84
Q82
C83
R83
C84
CNP83
Q81
CNP12B
R18B
R17B
Q11B
CNP13B
ORG
BRN
HE101
ERASE HEAD
HRP101
REC/PB HEAD
M2
REEL CAPSTAN
MOTOR
PM2
PLUNGER
[LEAF SW(B)BOARD]
Q12B
R14B
R11
R12
R13
D11B
CNP11B
S12
REC(A)
S14B
CrO2
S11B
HALF
S13
REC(B)
18
16
17
15
14

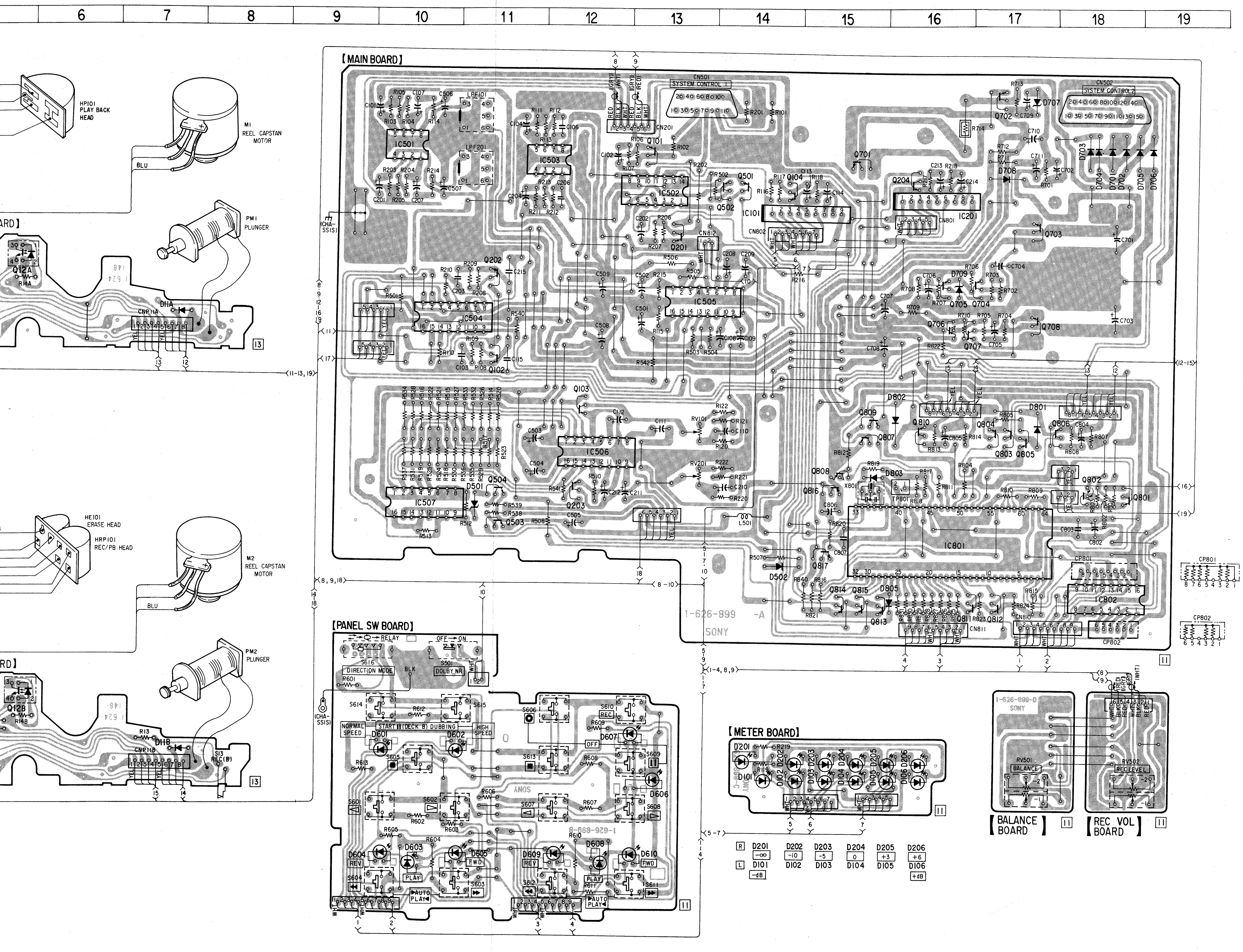


Note:

- Color code or sleeving over the end of the jacket.

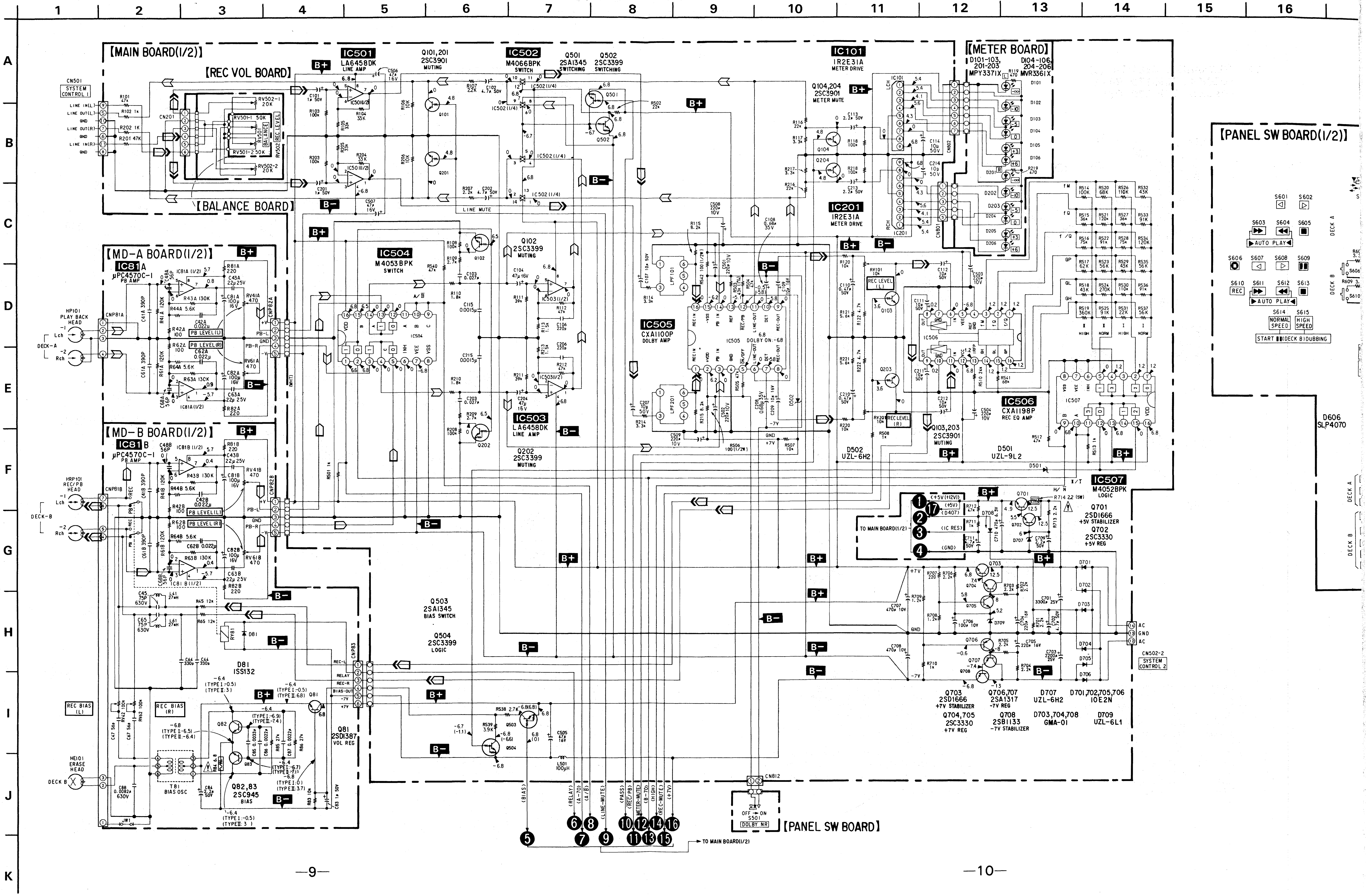

WHT
RED
(RED)(GRY)

- ○—— : parts extracted from the component side.
- ●—— : parts extracted from the conductor side.
- ⬚ indicates side identified with part number.


6
7
8
9
10
11
12
13
14
15
16
17
18
19
[MAIN BOARD]
[PANEL SW BOARD]
[METER BOARD]
[BALANCE BOARD]
[REC VOL BOARD]
HP101 PLAY BACK HEAD
M1 REEL CAPSTAN MOTOR
PM1 PLUNGER
HE101 ERASE HEAD
HRP101 REC/PB HEAD
M2 REEL CAPSTAN MOTOR
PM2 PLUNGER
Q12A
Q12B
D11A
D11B
CNP11A
CNP11B
S13 REC(B)
BLU
CN501 SYSTEM CONTROL 1
CN502 SYSTEM CONTROL 2
CN201
CN801
CN802
CN811
CN810
CN812
IC501
IC502
IC503
IC504
IC505
IC506
IC507
IC101
IC201
IC801
IC802
LPF101
LPF201
CP801
CP802
RV101
RV201
RV501 BALANCE
RV502 REC LEVEL
X801
L501
(CHA-SSIS)
1-626-899 -A
SONY
1-626-898-D
RELAY
OFF ON
S616 DIRECTION MODE
S501 DOLBY NR
NORMAL SPEED
START II (DECK B) DUBBING
HIGH SPEED
OFF
REC
REV
PLAY
FWD
AUTO PLAY
R D201 -∞ D202 -10 D203 -5 D204 0 D205 +3 D206 +6
L D101 -dB D102 D103 D104 D105 D106 +dB
11
13

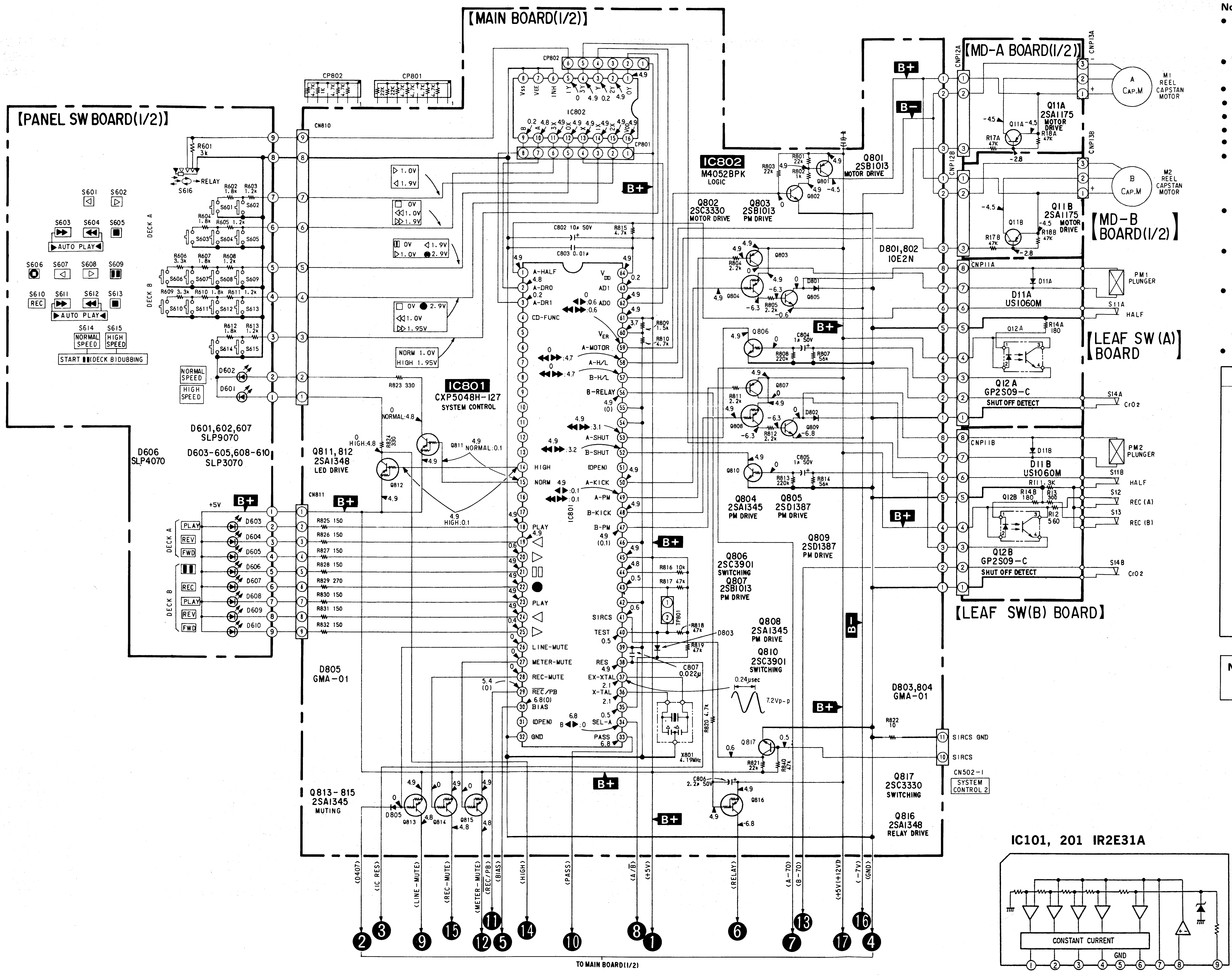
4-4. SCHEMATIC DIAGRAM —AUDIO SECTION—

4-5. SCHEMATIC DIAGRAM



[MAIN BOARD(1/2)]
[REC VOL BOARD]
[BALANCE BOARD]
[MD-A BOARD(1/2)]
[MD-B BOARD(1/2)]
[METER BOARD]
[PANEL SW BOARD(1/2)]
[PANEL SW BOARD]
CN501 SYSTEM CONTROL 1
LINE IN(L)
LINE OUT(L)
GND
LINE OUT(R)
GND
LINE IN(R)
GND
CN201
RV501-1 50K
RV501-2 50K
RV502-1 20K
RV502-2 20K
RV501 BALANCE
RV502 REC LEVEL
IC501 LA6458DK LINE AMP
Q101,201 2SC3901 MUTING
IC502 M4066BPK SWITCH
Q501 2SA1345 SWITCHING
Q502 2SC3399 SWITCHING
IC101 IR2E31A METER DRIVE
IC201 IR2E31A METER DRIVE
Q104,204 2SC3901 METER MUTE
D101-103, 201-203 MPY3371X
D104-106, 204-206 MVR3361X
LINE MUTE
IC504 M4053BPK SWITCH
Q102 2SC3399 MUTING
Q202 2SC3399 MUTING
IC503 LA6458DK LINE AMP
IC505 CXA1100P DOLBY AMP
LPF101
LPF201
REC LEVEL (L)
REC LEVEL (R)
Q103,203 2SC3901 MUTING
IC506 CXA1198P REC EQ AMP
IC507 M4052BPK LOGIC
D502 UZL-6H2
D501 UZL-9L2
HP101 PLAY BACK HEAD
DECK-A
Lch
Rch
IC81A μPC4570C-1 PB AMP
IC81B μPC4570C-1 PB AMP
PB LEVEL(L)
PB LEVEL(R)
HRP101 REC/PB HEAD
DECK-B
CNP81A
CNP82A
CNP81B
CNP82B
CNP83
REC-L
RELAY
REC-R
BIAS-OUT
-7V
+7V
RY81
D81 1SS132
Q503 2SA1345 BIAS SWITCH
Q504 2SC3399 LOGIC
REC BIAS (L)
REC BIAS (R)
HE101 ERASE HEAD
DECK B
T81 BIAS OSC
Q82,83 2SC945 BIAS
Q81 2SD1387 VOL REG
L501 100μH
JW1
CN812
OFF ← ON S501 DOLBY NR
(BIAS)
(RELAY)
(A-70)
(A/B)
(LINE-MUTE)
(PASS)
(REC/PB)
(METER-MUTE)
(B-70)
(HIGH)
(REC-MUTE)
(+7V)
⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯
TO MAIN BOARD(1/2)
❶ (+5V(+12V))
⑰ (+5V)
(D407)
❷ (IC RES)
❸ (GND)
❹
TO MAIN BOARD(1/2)
Q701 2SD1666 +5V STABILIZER
Q702 2SC3330 +5V REG
Q703 2SD1666 +7V STABILIZER
Q704,705 2SC3330 +7V REG
Q706,707 2SA1317 -7V REG
Q708 2SB1133 -7V STABILIZER
D707 UZL-6H2
D701,702,705,706 10E2N
D703,704,708 GMA-01
D709 UZL-6L1
AC
GND
AC
CN502-2 SYSTEM CONTROL 2
S601 S602 S603 S604 S605 S606 S607 S608 S609 S610 S611 S612 S613 S614 S615
AUTO PLAY
REC
NORMAL SPEED
HIGH SPEED
START ▮▮(DECK B)DUBBING
DECK A
DECK B
D606 SLP4070
B+
B-
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
A B C D E F G H I J K

4-5. SCHEMATIC DIAGRAM — SYSTEMCONTROL SECTION —


[MAIN BOARD(1/2)]
[PANEL SW BOARD(1/2)]
[MD-A BOARD(1/2)]
[MD-B BOARD(1/2)]
[LEAF SW (A) BOARD]
[LEAF SW(B) BOARD]
IC801 CXP5048H-127 SYSTEM CONTROL
IC802 M4052BPK LOGIC
Q801 2SB1013 MOTOR DRIVE
Q802 2SC3330 MOTOR DRIVE
Q803 2SB1013 PM DRIVE
Q804 2SA1345 PM DRIVE
Q805 2SD1387 PM DRIVE
Q806 2SC3901 SWITCHING
Q807 2SB1013 PM DRIVE
Q808 2SA1345 PM DRIVE
Q809 2SD1387 PM DRIVE
Q810 2SC3901 SWITCHING
Q811, 812 2SA1348 LED DRIVE
Q813-815 2SA1345 MUTING
Q816 2SA1348 RELAY DRIVE
Q817 2SC3330 SWITCHING
D801,802 10E2N
D803,804 GMA-01
D805 GMA-01
D601,602,607 SLP9070
D603-605,608-610 SLP3070
D606 SLP4070
Q11A 2SA1175 MOTOR DRIVE
Q11B 2SA1175 MOTOR DRIVE
D11A US1060M
D11B US1060M
Q12A GP2S09-C SHUT OFF DETECT
Q12B GP2S09-C SHUT OFF DETECT
M1 REEL CAPSTAN MOTOR
M2 REEL CAPSTAN MOTOR
PM1 PLUNGER
PM2 PLUNGER
CN502-1 SYSTEM CONTROL 2
X801 4.19MHz
TO MAIN BOARD(1/2)
(D407)
(IC RES)
(LINE-MUTE)
(REC-MUTE)
(METER-MUTE)
(REC/PB)
(BIAS)
(HIGH)
(PASS)
(A/B)
(+5V)
(RELAY)
(A-70)
(B-70)
(+5V(+12V))
(-7V)
(GND)
START ▮▮DECK B DUBBING
NORMAL SPEED
HIGH SPEED
AUTO PLAY
DECK A
DECK B
SIRCS GND
SIRCS

IC101, 201 IR2E31A

CONSTANT CURRENT
GND

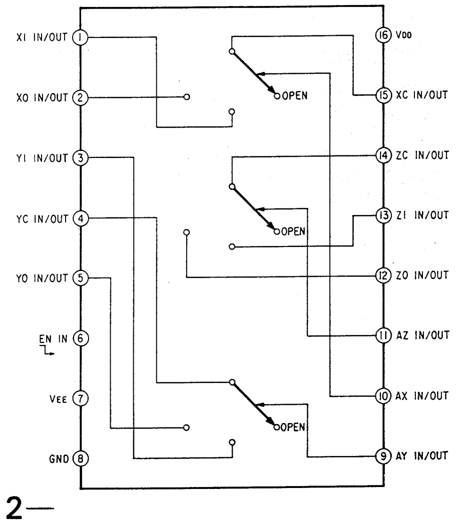
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- % : indicates tolerance.
- △ : internal component.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ▭ : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark : STOP
  (   ) : REC
- Voltages are taken with a VOM (50 kΩ/V).
  Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⊐ : PB (DECK A)
  ⊐ : PB (DECK B)
  ⊐» : REC (DECK B)
- Switch

Ref. No.	Switch	Position
S501	DOLBY NR	OFF
S601	◁ (DECK A)	OFF
S602	▷ (DECK A)	OFF
S603	▶▶ (DECK A)	OFF
S604	◀◀ (DECK A)	OFF
S605	■ (DECK A)	OFF
S606	⦿	OFF
S607	◁ (DECK B)	OFF
S608	▷ (DECK B)	OFF
S609	▮▮	OFF
S610	REC	OFF
S611	▶▶ (DECK B)	OFF
S612	◀◀ (DECK B)	OFF
S613	■ (DECK B)	OFF
S614	DUBBING NORMAL SPEED	OFF
S615	DUBBING HIGH SPEED	OFF
S616	DIRECTION MODE	⇄

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

IC504 M4053BP

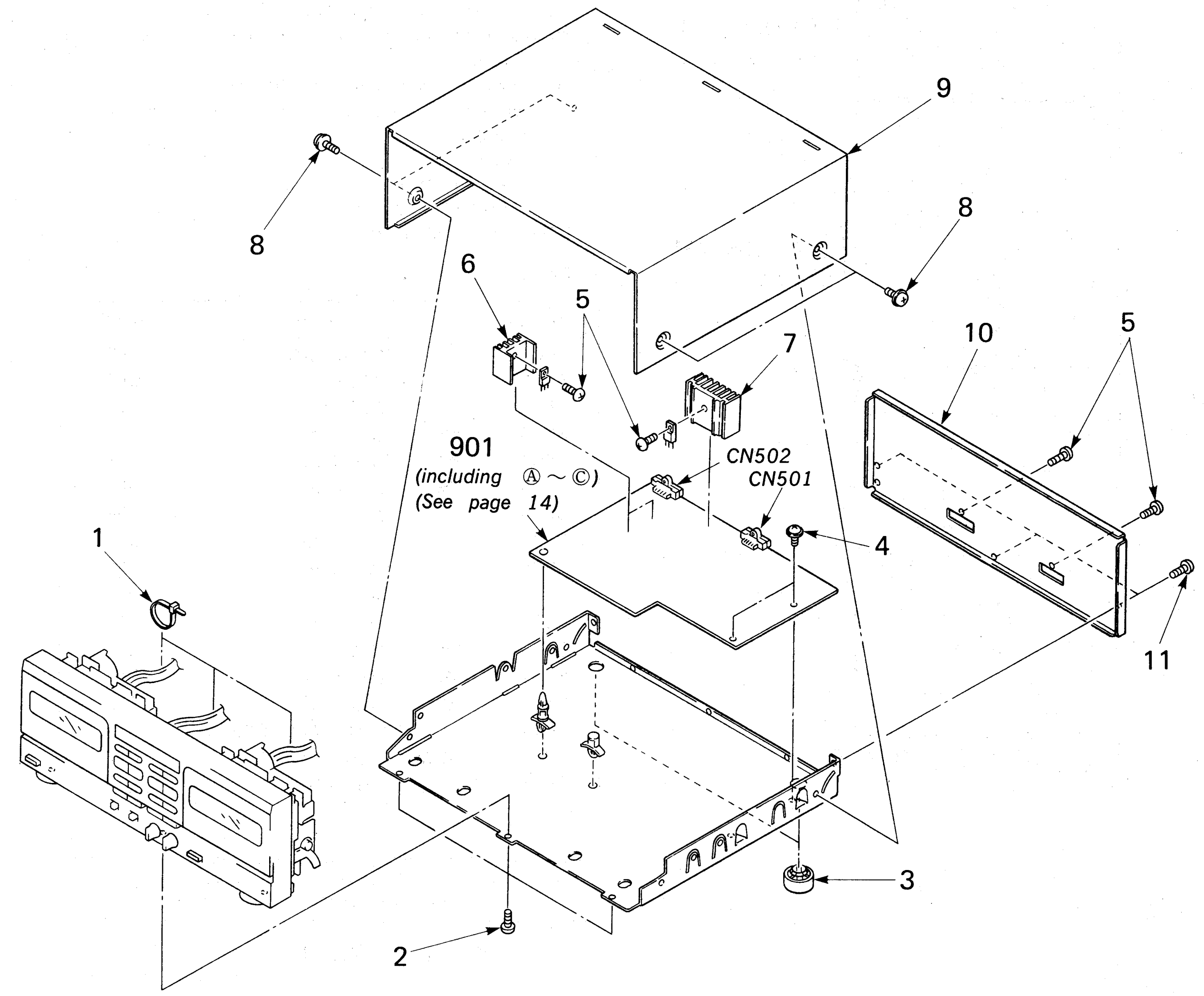

X1 IN/OUT
X0 IN/OUT
Y1 IN/OUT
YC IN/OUT
Y0 IN/OUT
EN IN
VEE
GND
VDD
XC IN/OUT
ZC IN/OUT
Z1 IN/OUT
Z0 IN/OUT
AZ IN/OUT
AX IN/OUT
AY IN/OUT
OPEN

SECTION 5
EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts
  Example:
  (RED) . . . KNOB, BALANCE (WHITE)
  ↑ ↑
  Cabinet's Color Parts Color

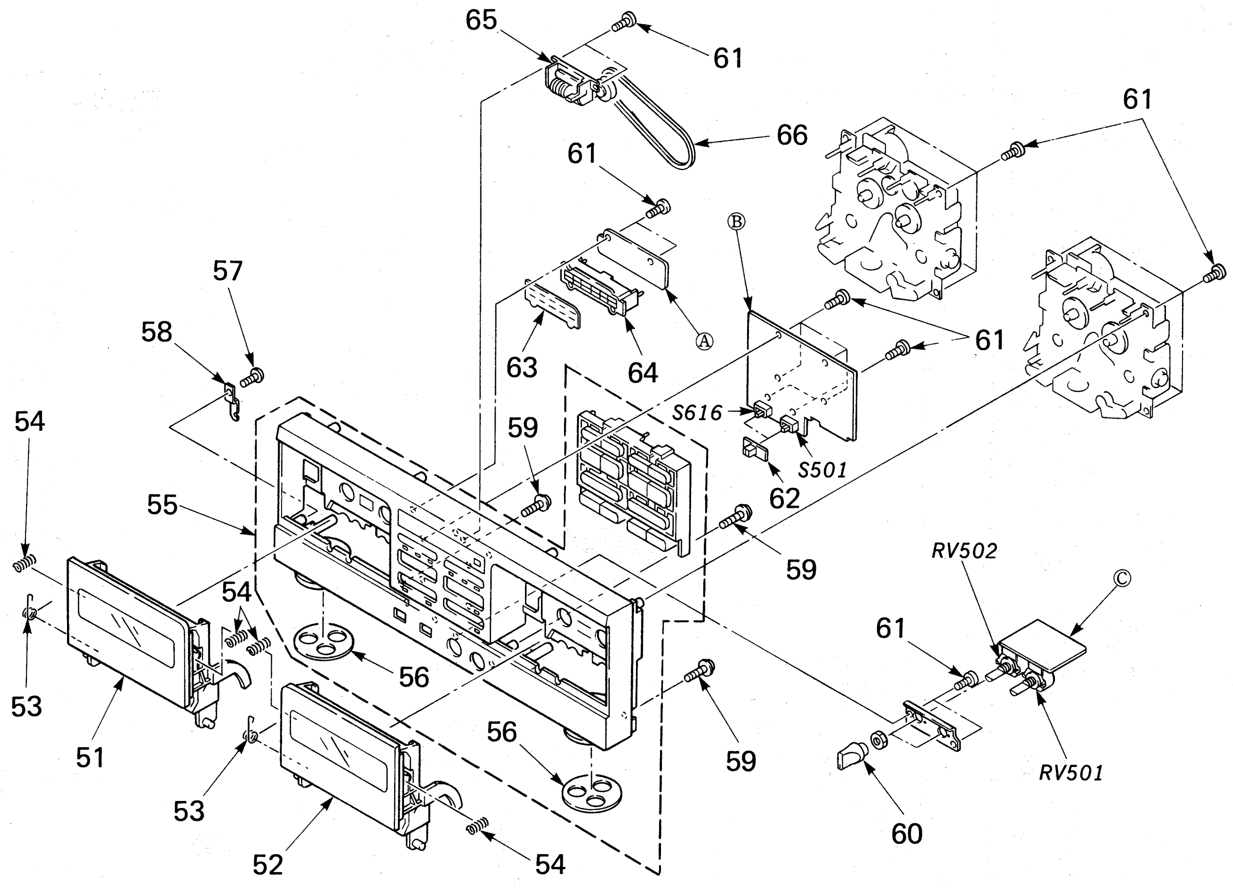
5-1. CABINET SECTION



Ref.No	Part No.	Description	Remarks
1	★3-337-402-01	BAND, BINDING	
2	7-682-548-04	SCREW +BVTT 3X8 (S)	
3	X-4921-901-1	FOOT ASSY	
4	4-886-821-11	SCREW, S TIGHT, +PTTWH 3X6	
5	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
6	★4-363-146-41	HEAT SINK, V.OUT	
7	★3-343-684-01	HEAT SINK	
8	4-886-821-01	SCREW, M3 CASE	

Ref.No	Part No.	Description	Remarks
9	4-919-379-31	(AEP, UK)....CASE	
9	4-919-379-31	(WG)....CASE	
10	★3-343-663-02	PANEL, BACK	
11	7-682-147-01	SCREW +BVTT 3X6 (S)	
901	★A-2056-421-A	MOUNTED PCB, MAIN	
CN501	★1-566-858-11	SOCKET, CONNECTOR 11P (SYSTEM CONTROL 1)	
CN502	★1-566-859-11	SOCKET, CONNECTOR 15P (SYSTEM CONTROL 2)	

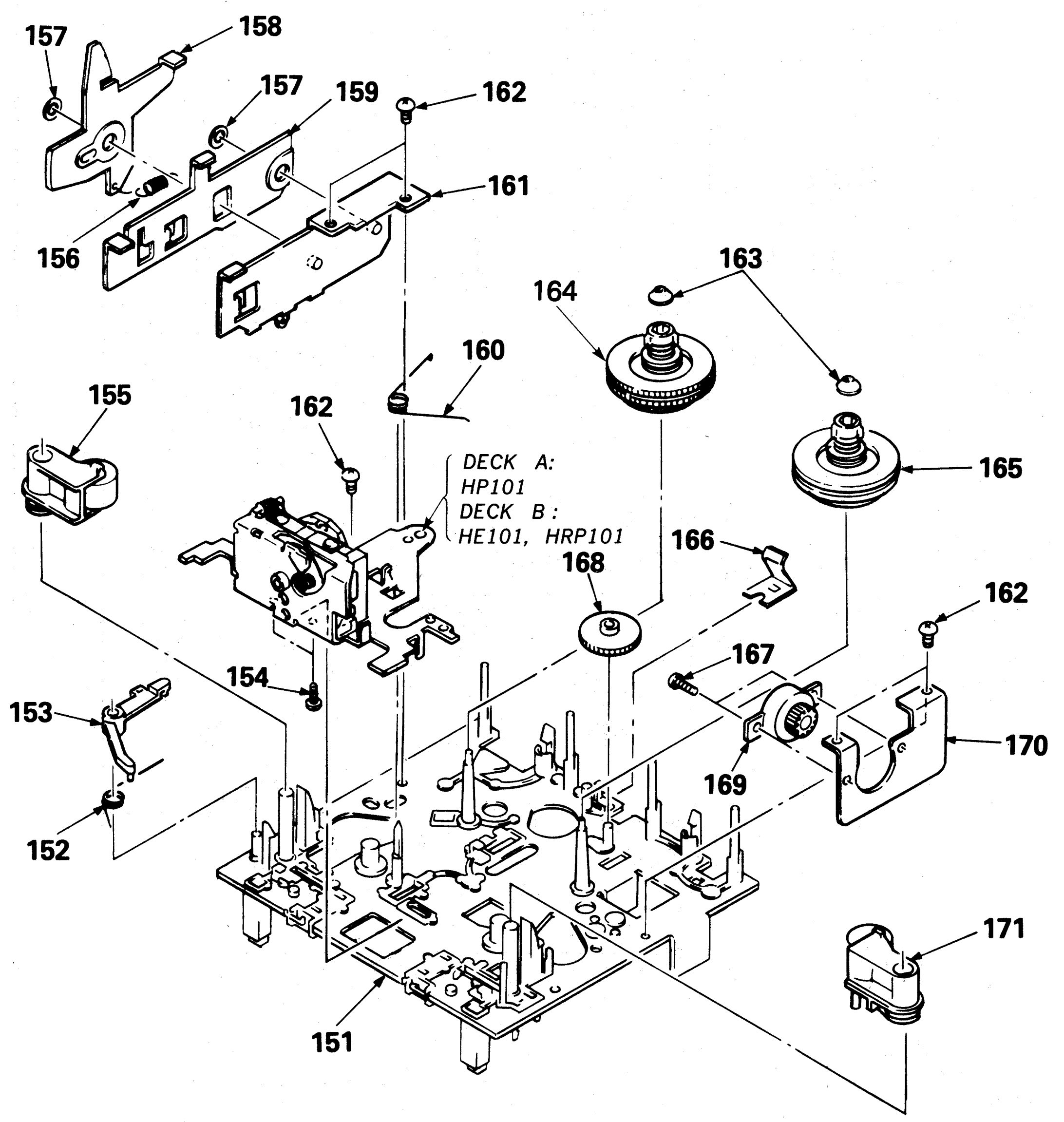
5-2. FRONT PANEL SECTION



Ref.No	Part No.	Description	Remarks
51	X-4924-501-1	(AEP, UK)....HOLDER (A) ASSY, CASSETTE 54	
51	X-4924-521-2	(WG)....HOLDER (A) ASSY, CASSETTE	
52	X-4924-503-1	(AEP, UK)....HOLDER (B) ASSY, CASSETTE 54	
52	X-4924-504-2	(WG)....HOLDER (B) ASSY, CASSETTE	
53	3-343-675-01	SPRING, TORSION	
54	★3-610-808-00	SPRING (1)	
55	X-3343-621-1	(AEP, UK)....PANEL ASSY, FRONT	
55	X-3343-622-1	(WG)....PANEL ASSY, FRONT	
56	4-921-906-01	FELT	
57	7-685-134-19	SCREW +P 2.6X8 TYPE2 NON-SLIT	
58	★3-343-674-01	BRACKET (HOLDER)	
59	7-685-648-79	SCREW, TAPPING	
60	4-908-097-11	(AEP, UK)....KNOB	

Ref.No	Part No.	Description	Remarks
60	4-908-097-21	(WG)....KNOB	
61	7-685-534-19	SCREW +BTP 2.6X8 TYPE2 N-S	
62	3-343-612-01	(WG)....KNOB (SLIDE)	
62	3-343-612-21	(AEP, UK)....KNOB (SLIDE)	
63	3-343-669-01	PLATE (METER), INDICATION	
64	★3-343-676-01	HOLDER, METER	
65	1-548-596-31	COUNTER, TAPE (MIDDLE TYPE)	
66	3-499-042-XX	BELT, C SHUT-OFF	
RV501	1-238-247-11	RES, VAR, CARBON 50K/50K (BALANCE)	
RV502	1-238-248-11	RES, VAR, CARBON 20K/20K (REC LEVEL)	
S501	1-571-298-11	SWITCH, SLIDE (DOLBY NR)	
S616	1-571-296-11	SWITCH, SLIDE (DIRECTION MODE)	

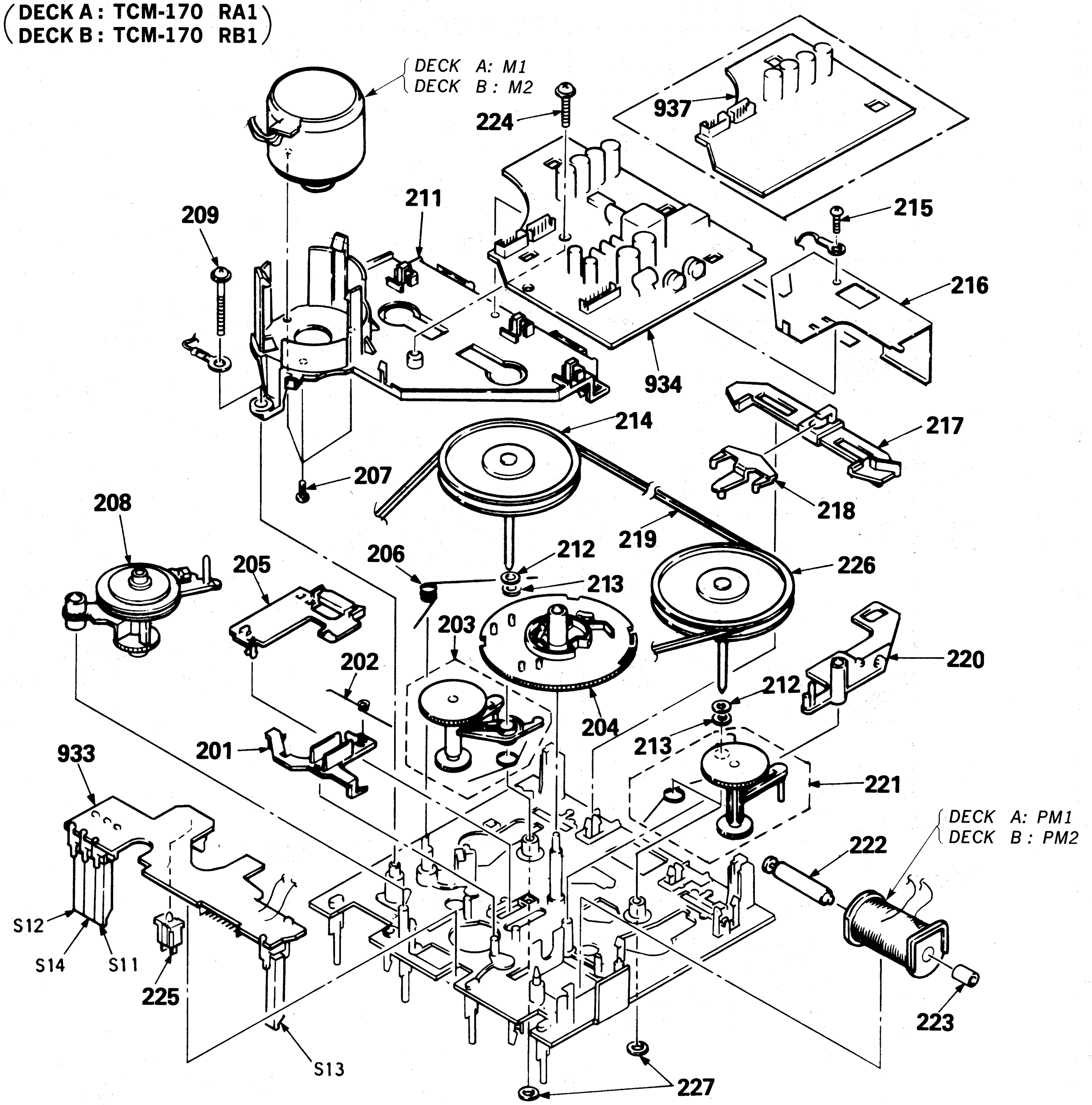
5-3. MECHANISM SECTION (1)
(DECK A : TCM-170 RA1
DECK B : TCM-170 RB1)


157
158
157
159
162
161
156
164
163
160
155
162
DECK A: HP101
DECK B: HE101, HRP101
168
166
165
162
167
154
153
170
169
152
171
151

Ref.No	Part No.	Description	Remarks
151	*X-3343-418-5	CHASSIS ASSY, MECHANICAL	
152	3-343-477-01	SPRING, TORSION (EJECT SAFTY)	
153	*3-343-476-03	LEVER (EJECT SAFETY LEVER)	
154	7-685-102-19	SCREW P 2X4 NON-SLIT TYPE 2	
155	X-3343-403-1	LEVER (PINCH LEVER REV) ASSY	
156	3-343-474-01	SPRING, TENSION	
157	3-558-708-21	WASHER, STOPPER	
158	*3-343-449-01	LEVER (LOCK LEVER)	
159	*3-343-668-01	LEVER (EJECT)	
160	3-343-401-01	SPRING, TORSION	
161	*X-3343-620-1	BRACKET (EJECT) ASSY	
162	7-621-773-86	SCREW +BVTT 2.6X4 (S)	

Ref.No	Part No.	Description	Remarks
163	3-343-439-01	CAP (REEL TABLE)	
164	X-3343-415-1	TABEL (REV) ASSY, REEL	
165	X-3343-401-1	TABEL ASSY, REEL	
166	3-343-420-01	SPRING, LEAF	
167	7-621-255-15	SCREW +PTT 2X3 (S)	
168	3-343-411-01	GEAR (FF GEAR)	
169	3-319-224-31	DAMPER, SMALL	
170	*3-343-438-01	BRACKET (DAMPER BRACKET)	
171	X-3343-402-1	LEVER (PINCH LEVER FWD) ASSY	
HE101 HRP101	A-2108-123-A	(DECK B)....CHASSIS ASSY, HEAD	
HP101	A-2108-122-A	(DECK A)....CHASSIS ASSY, HEAD	

5-4. MECHANISM SECTION (2)
(DECK A : TCM-170 RA1
DECK B : TCM-170 RB1)


DECK A: M1
DECK B: M2
224
937
211
209
215
216
934
214
217
207
208
218
219
206
212
205
226
213
203
220
202
212
204
213
201
933
221
DECK A: PM1
DECK B: PM2
222
S12
S14
S11
225
223
S13
227

Ref.No	Part No.	Description	Remarks
201	3-343-453-01	SLIDER (BRAKE PLATE)	
202	3-343-429-01	SPRING, TORSION	
203	X-3343-406-1	LEVER (TU ARM REV) ASSY	
204	3-343-470-01	GEAR (CAM GEAR)	
205	*3-343-461-01	SLIDER	
206	3-343-430-01	SPRING, TORSION	
207	7-627-556-28	SCREW +P 2.6X3.5	
208	X-3343-414-1	LAVER (FR ARM) ASSY	
209	3-343-403-01	SCREW (PTTWH 2X18)	
211	*X-3343-407-1	BASE (THRUST RETAINER) ASSY	
212	4-605-835-11	WASHER (2.6), POLYSLIDER	
213	3-307-482-00	WASHER, LUMILER	
214	X-3343-411-1	FLYWHEEL COMPLETE ASSY	
215	7-685-104-19	SCREW +P 2X6 TYPE2 NON-SLIT	
216	*3-343-480-01	PLATE, SHIELD	
217	*3-343-457-01	SLIDER (REVERSE SLIDER)	
218	3-343-462-01	LEVER	
219	3-343-426-01	BELT (CAPSTAN BELT SQUARE)	

Ref.No	Part No.	Description	Remarks
220	*3-343-456-01	LEVER (PM LEVER)	
221	X-3343-405-1	LEVER (TU ARM FWD) ASSY	
222	*3-343-425-01	ARBOR(MOVABLE IRON ARBOR),IRON	
223	*3-343-424-01	ARBOR (FIXED IRON ARBOR), IRON	
224	3-343-404-01	SCREW (PTPWH 2X10)	
225	*3-343-419-01	HOLDER (S SENSER A)	
226	X-3343-416-1	FLYWHEEL (REV) COMPLETE ASSY	
227	3-343-473-01	WASHER, NYLON	
933	*1-624-148-11	PC BOARD, LEAF SW (A), (B)	
934	*1-624-146-11	PC BOARD, MD-B	
937	*1-624-147-11	PC BOARD, MD-A	
PM1	1-454-456-11	(DECK A)....PLUNGER	
PM2	1-454-456-11	(DECK B)....PLUNGER	
S11	1-571-128-21	SWITCH, LEAF (HALF)	
S12	1-571-128-21	(DECK B)....SWITCH, LEAF (REC(A))	
S13	1-571-128-21	(DECK B)....SWITCH, LEAF (REC(B))	
S14	1-571-128-21	SWITCH, LEAF (CrO_2)	

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No	Part No.	Description			
901	*A-2001-303-A	OVERALL ASSY			
933	*1-624-148-11	PC BOARD, LEAF SW (A), (B)			
934	*1-624-146-11	PC BOARD, MD-B			
937	*1-624-147-11	PC BOARD, MD-A			
		CAPACITOR			
C41A	1-162-289-31	CERAMIC	390PF	10%	50V
C41B	1-162-289-31	CERAMIC	390PF	10%	50V
C42A	1-136-157-00	FILM	0.022MF	5%	50V
C42B	1-136-157-00	FILM	0.022MF	5%	50V
C43A	1-124-282-00	ELECT	22MF	20%	25V
C43B	1-124-282-00	ELECT	22MF	20%	25V
C44	1-162-288-31	CERAMIC	330PF	10%	50V
C45	1-136-273-91	FILM	75PF	5%	630V
C47	1-162-217-31	CERAMIC	56PF	5%	50V
C48A	1-162-217-31	CERAMIC	56PF	5%	50V
C48B	1-162-217-31	CERAMIC	56PF	5%	50V
C61A	1-162-289-31	CERAMIC	390PF	10%	50V
C61B	1-162-289-31	CERAMIC	390PF	10%	50V
C62A	1-136-157-00	FILM	0.022MF	5%	50V
C62B	1-136-157-00	FILM	0.022MF	5%	50V
C63A	1-124-282-00	ELECT	22MF	20%	25V
C63B	1-124-282-00	ELECT	22MF	20%	25V
C64	1-162-288-31	CERAMIC	330PF	10%	50V
C65	1-136-273-91	FILM	75PF	5%	630V
C67	1-162-217-31	CERAMIC	56PF	5%	50V
C68A	1-162-217-31	CERAMIC	56PF	5%	50V
C68B	1-162-217-31	CERAMIC	56PF	5%	50V
C81A	1-126-101-11	ELECT	100MF	20%	16V
C81B	1-126-101-11	ELECT	100MF	20%	16V
C82A	1-126-101-11	ELECT	100MF	20%	16V
C82B	1-126-101-11	ELECT	100MF	20%	16V
C83	1-124-499-11	ELECT	1MF	20%	50V
C84	1-124-925-11	ELECT	2.2MF	20%	50V
C85	1-130-477-00	MYLAR	0.0033MF	5%	50V
C86	1-130-475-00	MYLAR	0.0022MF	5%	50V
C87	1-130-475-00	MYLAR	0.0022MF	5%	50V
C88	1-136-562-11	FILM	0.0082MF	5%	630V
C101	1-124-499-11	ELECT	1MF	20%	50V
C102	1-124-927-11	ELECT	4.7MF	20%	50V
C103	1-136-158-00	FILM	0.027MF	5%	50V
C104	1-124-477-11	ELECT	47MF	20%	16V
C106	1-162-286-31	CERAMIC	220PF	10%	50V
C107	1-123-875-11	ELECT	10MF	20%	50V
C108	1-131-587-11	TANTALUM	0.68MF	10%	35V
C109	1-123-875-11	ELECT	10MF	20%	50V
C110	1-124-902-00	ELECT	0.47MF	20%	50V
C111	1-123-875-11	ELECT	10MF	20%	50V
C112	1-123-875-11	ELECT	10MF	20%	50V
C113	1-124-925-11	ELECT	2.2MF	20%	50V
C114	1-123-875-11	ELECT	10MF	20%	50V
C115	1-161-374-11	CERAMIC	0.0015MF	30%	16V

Ref.No	Part No.	Description			
C201	1-124-499-11	ELECT	1MF	20%	50V
C202	1-124-927-11	ELECT	4.7MF	20%	50V
C203	1-136-158-00	FILM	0.027MF	5%	50V
C204	1-124-477-11	ELECT	47MF	20%	16V
C206	1-162-286-31	CERAMIC	220PF	10%	50V
C207	1-123-875-11	ELECT	10MF	20%	50V
C208	1-131-587-11	TANTALUM	0.68MF	10%	35V
C209	1-123-875-11	ELECT	10MF	20%	50V
C210	1-124-902-00	ELECT	0.47MF	20%	50V
C211	1-123-875-11	ELECT	10MF	20%	50V
C212	1-123-875-11	ELECT	10MF	20%	50V
C213	1-124-925-11	ELECT	2.2MF	20%	50V
C214	1-123-875-11	ELECT	10MF	20%	50V
C215	1-161-374-11	CERAMIC	0.0015MF	30%	16V
C501	1-126-176-11	ELECT	220MF	20%	10V
C502	1-126-176-11	ELECT	220MF	20%	10V
C503	1-126-176-11	ELECT	220MF	20%	10V
C504	1-126-176-11	ELECT	220MF	20%	10V
C505	1-124-477-11	ELECT	47MF	20%	16V
C506	1-124-477-11	ELECT	47MF	20%	16V
C507	1-124-477-11	ELECT	47MF	20%	16V
C508	1-126-176-11	ELECT	220MF	20%	10V
C509	1-126-176-11	ELECT	220MF	20%	10V
C701	1-124-636-00	ELECT	3300MF	20%	25V
C702	1-124-927-11	ELECT	4.7MF	20%	50V
C703	1-124-563-11	ELECT	2200MF	20%	25V
C704	1-124-120-11	ELECT	220MF	20%	16V
C705	1-124-120-11	ELECT	220MF	20%	16V
C706	1-124-443-00	ELECT	100MF	20%	10V
C707	1-124-472-11	ELECT	470MF	20%	10V
C708	1-124-472-11	ELECT	470MF	20%	10V
C709	1-124-925-11	ELECT	2.2MF	20%	50V
C710	1-124-472-11	ELECT	470MF	20%	6.3V
C711	1-124-927-11	ELECT	4.7MF	20%	50V
C802	1-123-875-11	ELECT	10MF	20%	50V
C803	1-136-153-00	FILM	0.01MF	5%	50V
C804	1-124-499-11	ELECT	1MF	20%	50V
C805	1-124-499-11	ELECT	1MF	20%	50V
C806	1-124-925-11	ELECT	2.2MF	20%	50V
C807	1-161-494-00	CERAMIC	0.022MF	30%	25V
CN201	*1-564-708-11	PIN, CONNECTOR (SMALL TYPE) 6P			
CN501	*1-566-858-11	SOCKET, CONNECTOR 11P (SYSTEM CONTROL 1)			
CN502	*1-566-859-11	SOCKET, CONNECTOR 15P (SYSTEM CONTROL 2)			
CN801	*1-564-339-71	PIN, CONNECTOR 5P			
CN802	*1-564-341-51	PIN, CONNECTOR 7P			
CN810	*1-506-503-71	PIN, CONNECTOR 9P			
CN811	*1-506-503-61	PIN, CONNECTOR 9P			
CN812	*1-564-336-51	PIN, CONNECTOR 2P			
CNP11A	*1-564-501-11	PIN, CONNECTOR 8P			
CNP11B	*1-564-501-11	PIN, CONNECTOR 8P			
CNP12A	*1-564-337-51	PIN, CONNECTOR 3P			

Ref.No	Part No.	Description
CNP12B	*1-564-337-61	PIN, CONNECTOR 3P
CNP13A	*1-564-707-11	PIN, CONNECTOR (SMALL TYPE) 5P
CNP13B	*1-564-707-11	PIN, CONNECTOR (SMALL TYPE) 5P
CNP81A	*1-564-706-31	PIN, CONNECTOR (SMALL TYPE) 4P
CNP81B	*1-564-709-11	PIN, CONNECTOR (SMALL TYPE) 7P
CNP82A	*1-564-339-51	PIN, CONNECTOR 5P
CNP82B	*1-564-339-61	PIN, CONNECTOR 5P
CNP83	*1-564-340-61	PIN, CONNECTOR 6P
IC81A	8-759-111-44	IC UPC4570C-1
IC81B	8-759-111-44	IC UPC4570C-1
L41	1-410-780-11	INDUCTOR 27MMH
L61	1-410-780-11	INDUCTOR 27MMH
CP801	1-233-120-11	COMPOSITION CIRCUIT BLOCK
CP802	1-233-119-11	COMPOSITION CIRCUIT BLOCK
D11A	8-719-940-76	DIODE 1SS132
D11B	8-719-940-76	DIODE 1SS132
D101	8-719-970-98	DIODE MPY3371X
D102	8-719-970-98	DIODE MPY3371X
D103	8-719-970-98	DIODE MPY3371X
D104	8-719-970-96	DIODE MVR3361X
D105	8-719-970-96	DIODE MVR3361X
D106	8-719-970-96	DIODE MVR3361X
D201	8-719-970-98	DIODE MPY3371X
D202	8-719-970-98	DIODE MPY3371X
D203	8-719-970-98	DIODE MPY3371X
D204	8-719-970-96	DIODE MVR3361X
D205	8-719-970-96	DIODE MVR3361X
D206	8-719-970-96	DIODE MVR3361X
D81	8-719-940-76	DIODE 1SS132
D501	8-719-001-05	DIODE UZL-9L2
D502	8-719-000-59	DIODE UZL-6H2
D601	1-807-689-11	DIODE SLP9070
D602	1-807-689-11	DIODE SLP9070
D603	8-719-969-90	DIODE SLP3070K
D604	8-719-969-90	DIODE SLP3070K
D605	8-719-969-90	DIODE SLP3070K
D606	1-807-689-31	DIODE SLP4070
D607	1-807-689-11	DIODE SLP9070
D608	8-719-969-90	DIODE SLP3070K
D609	8-719-969-90	DIODE SLP3070K
D610	8-719-969-90	DIODE SLP3070K
D701	8-719-200-77	DIODE 10E2N
D702	8-719-200-77	DIODE 10E2N
D703	1-106-937-11	DIODE GMA-01
D704	1-806-937-11	DIODE GMA-01
D705	8-719-200-77	DIODE 10E2N
D706	8-719-200-77	DIODE 10E2N
D707	8-719-000-59	DIODE UZL-6H2
D708	1-806-937-11	DIODE GMA-01
D709	8-719-000-48	DIODE UZL-6L1
D801	8-719-200-77	DIODE 10E2N
D802	8-719-200-77	DIODE 10E2N
D803	1-806-937-11	DIODE GMA-01
D805	1-806-937-11	DIODE GMA-01
HE101 HRP101	A-2108-123-A	(DEAK B)....CHASSIS, ASSY, HEAD
HP101	A-2108-122-A	(DEAK A)....CHASSIS, ASSY, HEAD
IC81A	8-759-111-44	IC UPC4570C-1
IC81B	8-759-111-44	IC UPC4570C-1
IC101	8-759-917-42	IC IR2E31A
IC201	8-759-917-42	IC IR2E31A
IC501	8-759-820-38	IC LA6458D
IC502	8-759-601-43	IC M4066BP

Ref.No	Part No.	Description
IC503	8-759-820-38	IC LA6458D
IC504	8-759-601-41	IC M4053BP
IC505	8-752-031-67	IC CXA1100P
IC506	8-752-032-60	IC CXA1198P
IC507	8-759-240-52	IC TC4052BP
IC801	8-752-804-34	IC CXP5048H-127S
IC802	8-759-240-52	IC TC4052BP
L41	1-410-780-11	INDUCTOR 27MMH
L61	1-410-780-11	INDUCTOR 27MMH
L501	1-408-080-00	INDUCTOR 100UH
LPF101	1-236-087-11	FILTER, LOW PASS
LPF201	1-236-087-11	FILTER, LOW PASS
M1	X-3343-408-1	(DECK A)....MOTOR ASSY
M2	X-3343-408-1	(DECK B)....MOTOR ASSY
PM1	1-454-456-11	(DECK A)....PLUNGER
PM2	1-454-456-11	(DECK B)....PLUNGER
Q11A	8-729-900-65	TRANSISTOR DTA144ES
Q11B	8-729-900-65	TRANSISTOR DTA144ES
Q12A	8-719-939-11	TRANSISTOR GP2S09-B
Q12B	8-719-939-11	TRANSISTOR GP2S09-B
Q81	8-729-802-34	TRANSISTOR 2SD1387
Q82	8-729-600-27	TRANSISTOR 2SC634SP
Q83	8-729-600-27	TRANSISTOR 2SC634SP
Q101	8-729-806-26	TRANSISTOR 2SC3901
Q102	8-729-806-38	TRANSISTOR 2SC3399
Q103	8-729-806-26	TRANSISTOR 2SC3901
Q104	8-729-806-26	TRANSISTOR 2SC3901
Q201	8-729-806-26	TRANSISTOR 2SC3901
Q202	8-729-806-38	TRANSISTOR 2SC3399
Q203	8-729-806-26	TRANSISTOR 2SC3901
Q204	8-729-806-26	TRANSISTOR 2SC3901
Q501	8-729-806-20	TRANSISTOR 2SA1345
Q502	8-729-806-38	TRANSISTOR 2SC3399
Q503	8-729-806-20	TRANSISTOR 2SA1345
Q504	8-729-806-38	TRANSISTOR 2SC3399
Q701	8-729-804-17	TRANSISTOR 2SD1666-R
Q702	8-729-820-23	TRANSISTOR 2SC3330
Q703	8-729-804-17	TRANSISTOR 2SD1666-R
Q704	8-729-820-23	TRANSISTOR 2SC3330
Q705	8-729-820-23	TRANSISTOR 2SC3330
Q706	8-729-820-10	TRANSISTOR 2SA1317-SU
Q707	8-729-820-10	TRANSISTOR 2SA1317-SU
Q708	8-729-804-67	TRANSISTOR 2SB1133-R
Q801	8-729-801-83	TRANSISTOR 2SB1013
Q802	8-729-820-23	TRANSISTOR 2SC3330
Q803	8-729-801-83	TRANSISTOR 2SB1013
Q804	8-729-806-20	TRANSISTOR 2SA1345
Q805	8-729-801-93	TRANSISTOR 2SD1387
Q806	8-729-806-26	TRANSISTOR 2SC3901
Q807	8-729-801-83	TRANSISTOR 2SB1013
Q808	8-729-806-20	TRANSISTOR 2SA1345
Q809	8-729-801-93	TRANSISTOR 2SD1387
Q810	8-729-806-26	TRANSISTOR 2SC3901
Q811	9-986-159-01	TRANSISTOR 2SA1348
Q812	9-986-159-01	TRANSISTOR 2SA1348
Q813	8-729-806-20	TRANSISTOR 2SA1345
Q814	8-729-806-20	TRANSISTOR 2SA1345
Q815	8-729-806-20	TRANSISTOR 2SA1345
Q816	9-986-159-01	TRANSISTOR 2SA1348
Q817	8-729-820-23	TRANSISTOR 2SC3330

RESISTOR

Ref.No	Part No.	Description			
R11	1-247-834-11	CARBON	1.3K	5%	1/4W

Ref.No	Part No.	Description				
R12	1-249-414-11	CARBON	560	5%	1/4W	
R13	1-247-818-11	CARBON	300	5%	1/4W	
R14A	1-249-408-11	CARBON	180	5%	1/4W	
R14B	1-249-408-11	CARBON	180	5%	1/4W	
R17A	1-249-437-11	CARBON	47K	5%	1/4W	
R17B	1-249-437-11	CARBON	47K	5%	1/4W	
R18A	1-249-437-11	CARBON	47K	5%	1/4W	
R18B	1-249-437-11	CARBON	47K	5%	1/4W	
R41A	1-247-881-00	CARBON	120K	5%	1/4W	
R41B	1-247-881-00	CARBON	120K	5%	1/4W	
R42A	1-249-405-11	CARBON	100	5%	1/4W	
R42B	1-249-405-11	CARBON	100	5%	1/4W	
R43A	1-247-882-11	CARBON	130K	5%	1/4W	
R43B	1-247-882-11	CARBON	130K	5%	1/4W	
R44A	1-249-426-11	CARBON	5.6K	5%	1/4W	
R44B	1-249-426-11	CARBON	5.6K	5%	1/4W	
R45	1-249-430-11	CARBON	12K	5%	1/4W	
R61A	1-247-881-00	CARBON	120K	5%	1/4W	
R61B	1-247-881-00	CARBON	120K	5%	1/4W	
R62A	1-249-405-11	CARBON	100	5%	1/4W	
R62B	1-249-405-11	CARBON	100	5%	1/4W	
R63A	1-247-882-11	CARBON	130K	5%	1/4W	
R63B	1-247-882-11	CARBON	130K	5%	1/4W	
R64A	1-249-426-11	CARBON	5.6K	5%	1/4W	
R64B	1-249-426-11	CARBON	5.6K	5%	1/4W	
R65	1-249-430-11	CARBON	12K	5%	1/4W	
R81A	1-249-409-11	CARBON	220	5%	1/4W	
R81B	1-249-409-11	CARBON	220	5%	1/4W	
R82A	1-249-409-11	CARBON	220	5%	1/4W	
R82B	1-249-409-11	CARBON	220	5%	1/4W	
R83	1-249-429-11	CARBON	10K	5%	1/4W	
R84	⚠.1-212-853-00	FUSIBLE	6.8	5%	1/4W	F
R85	1-249-434-11	CARBON	27K	5%	1/4W	
R86	1-249-434-11	CARBON	27K	5%	1/4W	
R101	1-249-437-11	CARBON	47K	5%	1/4W	
R102	1-249-417-11	CARBON	1K	5%	1/4W	
R103	1-249-441-11	CARBON	100K	5%	1/4W	
R104	1-249-435-11	CARBON	33K	5%	1/4W	
R105	1-249-435-11	CARBON	33K	5%	1/4W	
R106	1-249-429-11	CARBON	10K	5%	1/4W	
R107	1-249-421-11	CARBON	2.2K	5%	1/4W	
R108	1-249-441-11	CARBON	100K	5%	1/4W	
R109	1-249-422-11	CARBON	2.7K	5%	1/4W	
R110	1-249-420-11	CARBON	1.8K	5%	1/4W	
R111	1-249-436-11	CARBON	39K	5%	1/4W	
R112	1-249-437-11	CARBON	47K	5%	1/4W	
R113	1-249-419-11	CARBON	1.5K	5%	1/4W	
R114	1-249-423-11	CARBON	3.3K	5%	1/4W	
R115	1-249-428-11	CARBON	8.2K	5%	1/4W	
R116	1-249-433-11	CARBON	22K	5%	1/4W	
R117	1-249-423-11	CARBON	3.3K	5%	1/4W	
R118	1-249-441-11	CARBON	100K	5%	1/4W	
R119	1-249-413-11	CARBON	470	5%	1/4W	
R120	1-249-429-11	CARBON	10K	5%	1/4W	
R121	1-249-426-11	CARBON	5.6K	5%	1/4W	
R122	1-249-425-11	CARBON	4.7K	5%	1/4W	
R201	1-249-437-11	CARBON	47K	5%	1/4W	
R202	1-249-417-11	CARBON	1K	5%	1/4W	
R203	1-249-441-11	CARBON	100K	5%	1/4W	
R204	1-249-435-11	CARBON	33K	5%	1/4W	
R205	1-249-435-11	CARBON	33K	5%	1/4W	
R206	1-249-429-11	CARBON	10K	5%	1/4W	
R207	1-249-421-11	CARBON	2.2K	5%	1/4W	
R208	1-249-441-11	CARBON	100K	5%	1/4W	
R209	1-249-422-11	CARBON	2.7K	5%	1/4W	
R210	1-249-420-11	CARBON	1.8K	5%	1/4W	
R211	1-249-436-11	CARBON	39K	5%	1/4W	
R212	1-249-437-11	CARBON	47K	5%	1/4W	
R213	1-249-419-11	CARBON	1.5K	5%	1/4W	
R214	1-249-423-11	CARBON	3.3K	5%	1/4W	
R215	1-249-428-11	CARBON	8.2K	5%	1/4W	
R216	1-249-433-11	CARBON	22K	5%	1/4W	
R217	1-249-423-11	CARBON	3.3K	5%	1/4W	
R218	1-249-441-11	CARBON	100K	5%	1/4W	
R219	1-249-413-11	CARBON	470	5%	1/4W	
R220	1-249-429-11	CARBON	10K	5%	1/4W	
R221	1-249-426-11	CARBON	5.6K	5%	1/4W	
R222	1-249-425-11	CARBON	4.7K	5%	1/4W	
R501	1-249-417-11	CARBON	1K	5%	1/4W	
R502	1-249-433-11	CARBON	22K	5%	1/4W	
R503	1-215-460-00	METAL	43K	1%	1/6W	
R504	1-249-437-11	CARBON	47K	5%	1/4W	
R505	1-249-437-11	CARBON	47K	5%	1/4W	
R506	1-247-739-11	CARBON	100	5%	1/2W	
R507	1-249-429-11	CARBON	10K	5%	1/4W	
R508	1-249-417-11	CARBON	1K	5%	1/4W	
R510	1-247-864-11	CARBON	24K	5%	1/4W	
R512	1-249-437-11	CARBON	47K	5%	1/4W	
R513	1-249-417-11	CARBON	1K	5%	1/4W	
R514	1-249-441-11	CARBON	100K	5%	1/4W	
R515	1-247-868-11	CARBON	36K	5%	1/4W	
R516	1-247-876-11	CARBON	75K	5%	1/4W	
R517	1-247-874-11	CARBON	62K	5%	1/4W	
R518	1-247-892-11	CARBON	360K	5%	1/4W	
R519	1-247-870-11	CARBON	43K	5%	1/4W	
R520	1-249-439-11	CARBON	68K	5%	1/4W	
R521	1-247-881-00	CARBON	120K	5%	1/4W	
R522	1-247-878-00	CARBON	91K	5%	1/4W	
R523	1-249-438-11	CARBON	56K	5%	1/4W	
R524	1-247-889-00	CARBON	270K	5%	1/4W	
R525	1-247-878-00	CARBON	91K	5%	1/4W	
R526	1-247-880-11	CARBON	110K	5%	1/4W	
R527	1-247-868-11	CARBON	36K	5%	1/4W	
R528	1-247-876-11	CARBON	75K	5%	1/4W	
R529	1-247-870-11	CARBON	43K	5%	1/4W	
R530	1-247-880-11	CARBON	110K	5%	1/4W	
R531	1-249-433-11	CARBON	22K	5%	1/4W	
R532	1-247-870-11	CARBON	43K	5%	1/4W	
R533	1-247-878-00	CARBON	91K	5%	1/4W	
R534	1-247-881-00	CARBON	120K	5%	1/4W	
R535	1-249-438-11	CARBON	56K	5%	1/4W	
R536	1-247-878-00	CARBON	91K	5%	1/4W	
R537	1-249-438-11	CARBON	56K	5%	1/4W	
R538	1-249-422-11	CARBON	2.7K	5%	1/4W	
R539	1-249-424-11	CARBON	3.9K	5%	1/4W	
R540	1-249-437-11	CARBON	47K	5%	1/4W	
R541	1-249-439-11	CARBON	68K	5%	1/4W	
R542	1-247-739-11	CARBON	100	5%	1/2W	
R601	1-247-842-11	CARBON	3K	5%	1/4W	
R602	1-249-420-11	CARBON	1.8K	5%	1/4W	
R603	1-249-418-11	CARBON	1.2K	5%	1/4W	
R604	1-249-420-11	CARBON	1.8K	5%	1/4W	
R605	1-249-418-11	CARBON	1.2K	5%	1/4W	
R606	1-249-423-11	CARBON	3.3K	5%	1/4W	
R607	1-249-420-11	CARBON	1.8K	5%	1/4W	
R608	1-249-418-11	CARBON	1.2K	5%	1/4W	
R609	1-249-423-11	CARBON	3.3K	5%	1/4W	
R610	1-249-420-11	CARBON	1.8K	5%	1/4W	
R611	1-249-418-11	CARBON	1.2K	5%	1/4W	
R612	1-249-420-11	CARBON	1.8K	5%	1/4W	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No	Part No.	Description				
R613	1-249-418-11	CARBON	1.2K	5%	1/4W	
R701	1-249-421-11	CARBON	2.2K	5%	1/4W	
R702	1-249-421-11	CARBON	2.2K	5%	1/4W	
R703	1-249-421-11	CARBON	2.2K	5%	1/4W	
R704	1-249-421-11	CARBON	2.2K	5%	1/4W	
R705	1-249-421-11	CARBON	2.2K	5%	1/4W	
R706	1-249-421-11	CARBON	2.2K	5%	1/4W	
R707	1-249-409-11	CARBON	220	5%	1/4W	
R708	1-249-418-11	CARBON	1.2K	5%	1/4W	
R709	1-249-418-11	CARBON	1.2K	5%	1/4W	
R710	1-249-417-11	CARBON	1K	5%	1/4W	
R711	1-249-417-11	CARBON	1K	5%	1/4W	
R712	1-249-437-11	CARBON	47K	5%	1/4W	
R713	1-249-421-11	CARBON	2.2K	5%	1/4W	
R714	⚠.1-207-672-00	WIREWOUND	2.2	10%	5W	F
R801	1-249-433-11	CARBON	22K	5%	1/4W	
R802	1-249-417-11	CARBON	1K	5%	1/4W	
R803	1-249-433-11	CARBON	22K	5%	1/4W	
R804	1-249-421-11	CARBON	2.2K	5%	1/4W	
R805	1-249-421-11	CARBON	2.2K	5%	1/4W	
R807	1-249-438-11	CARBON	56K	5%	1/4W	
R808	1-247-887-00	CARBON	220K	5%	1/4W	
R809	1-249-419-11	CARBON	1.5K	5%	1/4W	
R810	1-249-425-11	CARBON	4.7K	5%	1/4W	
R811	1-249-421-11	CARBON	2.2K	5%	1/4W	
R812	1-249-421-11	CARBON	2.2K	5%	1/4W	
R813	1-247-887-00	CARBON	220K	5%	1/4W	
R814	1-249-438-11	CARBON	56K	5%	1/4W	
R815	1-249-425-11	CARBON	4.7K	5%	1/4W	
R816	1-249-429-11	CARBON	10K	5%	1/4W	
R817	1-249-437-11	CARBON	47K	5%	1/4W	
R818	1-249-437-11	CARBON	47K	5%	1/4W	
R819	1-249-437-11	CARBON	47K	5%	1/4W	
R820	1-249-425-11	CARBON	4.7K	5%	1/4W	
R821	1-249-433-11	CARBON	22K	5%	1/4W	
R822	1-249-393-11	CARBON	10	5%	1/4W	
R823	1-249-411-11	CARBON	330	5%	1/4W	
R824	1-249-411-11	CARBON	330	5%	1/4W	
R825	1-249-407-11	CARBON	150	5%	1/4W	
R826	1-249-407-11	CARBON	150	5%	1/4W	
R827	1-249-407-11	CARBON	150	5%	1/4W	
R828	1-249-407-11	CARBON	150	5%	1/4W	
R829	1-249-410-11	CARBON	270	5%	1/4W	
R830	1-249-407-11	CARBON	150	5%	1/4W	
R831	1-249-407-11	CARBON	150	5%	1/4W	
R832	1-249-407-11	CARBON	150	5%	1/4W	
R840	1-249-437-11	CARBON	47K	5%	1/4W	
RV41A	1-228-989-00	RES, ADJ, CARBON 470				
RV41B	1-228-989-00	RES, ADJ, CARBON 470				
RV42	1-230-499-11	RES, ADJ, CARBON 100K				
RV61A	1-228-989-00	RES, ADJ, CARBON 470				
RV61B	1-228-989-00	RES, ADJ, CARBON 470				
RV62	1-230-499-11	RES, ADJ, CARBON 100K				
RV101	1-228-994-00	RES, ADJ, CARBON 10K				
RV201	1-228-994-00	RES, ADJ, CARBON 10K				
RV501	1-238-247-11	RES, VAR, CARBON 50K/50K (BALANCE)				
RV502	1-238-248-11	RES, VAR, CARBON 20K/20K (REC LEVEL)				
RY81	1-515-614-11	RELAY				
S11A	1-571-281-21	SWITCH, LEAF (HALF)				
S11B	1-571-281-21	SWITCH, LEAF (HALF)				
S12	1-571-281-21	SWITCH, LEAF				
S13	1-571-281-21	SWITCH, LEAF				
S14A	1-571-281-21	SWITCH, LEAF (CrO_2)				

Ref.No	Part No.	Description
S14B	1-571-281-21	SWITCH, LEAF (CrO_2)
S501	1-571-298-11	SWITCH, SLIDE (DOLBY NR)
S601	1-554-303-21	SWITCH, KEY BOARD (◁ (DECK A))
S602	1-554-303-21	SWITCH, KEY BOARD (▷ (DECK A))
S603	1-554-303-21	SWITCH, KEY BOARD (▶▶ (DECK A))
S604	1-554-303-21	SWITCH, KEY BOARD (◀◀ (DECK A))
S605	1-554-303-21	SWITCH, KEY BOARD (■ (DECK A))
S606	1-554-303-21	SWITCH, KEY BOARD (◘)
S607	1-554-303-21	SWITCH, KEY BOARD (◁ (DECK B))
S608	1-554-303-21	SWITCH, KEY BOARD (▷ (DECK B))
S609	1-554-303-21	SWITCH, KEY BOARD (❚❚)
S610	1-554-303-21	SWITCH, KEY BOARD (REC)
S611	1-554-303-21	SWITCH, KEY BOARD (▶▶ (DECK B))
S612	1-554-303-21	SWITCH, KEY BOARD (◀◀ (DECK B))
S613	1-554-303-21	SWITCH, KEY BOARD (■ (DECK B))
S614	1-554-303-21	SWITCH, KEY BOARD (DUBBING NORMAL SPEED)
S615	1-554-303-21	SWITCH, KEY BOARD (DUBBING HIGH SPEED)
S616	1-571-296-11	SWITCH, SLIDE (DIRECTION MODE)
T81	1-433-331-11	TRANSFORMER, BIAS OSCILLATION
TP801	*1-560-060-00	PIN, CONNECTOR 2P
X801	1-567-772-11	VIBRATOR, CERAMIC (4.19MHz)

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

9-953-327-11

Sony Corporation
Audio Group

English
88E0453-1
Printed in Japan
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Published by A/V Engineering Service Dept.

ICF-C103

SERVICE MANUAL

US Model
Canadian Model
AEP Model
E Model
Australian Model

DIGICUBE
SONY
PLL SYNTHESIZED
CLOCK RADIO

SPECIFICATIONS

Frequency range	Model for North and South America FM: 87.5 – 108 MHz AM: 530 – 1,710 kHz Model for other countries FM: 87.5 – 108 MHz AM: 531 – 1,602 kHz Intermediate frequency FM: 10.7 MHz AM: 450 kHz
Scan step	Model for North and South America FM: 0.1 MHz (fixed) AM: 10 kHz (fixed) Model for other countries FM: 0.05* MHz (fixed) AM: 9 kHz (fixed) * The frequency display is raised or lowered by steps of 0.1 MHz. (Example: Frequency 88.05 MHz is displayed as "88.0 MHz".)

Antennas	FM: FM wire antenna AM: Built-in ferrite bar antenna
Speaker	Approx. 6.6 cm (2 5/8 inches) dia.
Power output	120 mW (at 10% harmonic distortion)
Power requirements	North and South American model: 120 V AC, 60 Hz UK model: 240 V AC, 50 Hz Other models: 220 – 230 V AC, 50 Hz
Dimensions	Approx. 115 × 110 × 105 mm (w/h/d) (4 5/8 × 4 3/8 × 4 1/4 inches) incl. projecting parts and controls
Weight	Approx. 590 g (1 lb 5 oz)
Accessory supplied	FM antenna coupler (1, Models for Netherlands, Belgium, Switzerland and Austria only)

Design and specifications are subject to change without notice.

Note
This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

FM/AM PLL SYNTHESIZED CLOCK RADIO

MICROFILM

SONY®

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:
Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring, the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

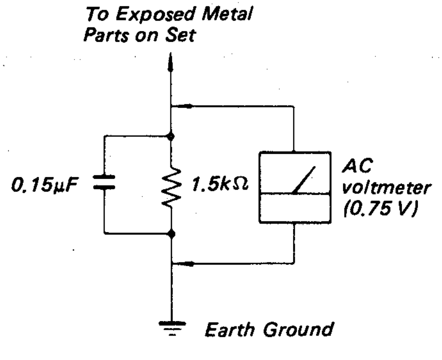

Fig. A. Using an AC voltmeter to check AC leakage.

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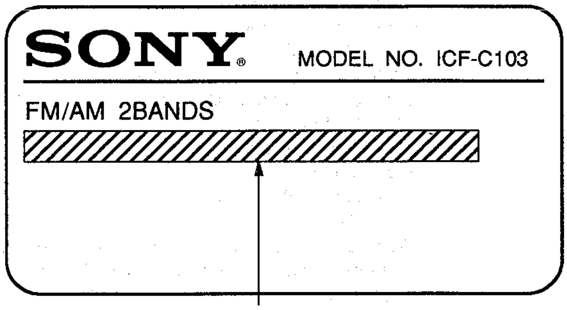
MODEL IDENTIFICATION

— Model Number Portion —



US, Canadian model : AC : 120V ~ 60Hz 3W
AEP, Italian, E model : AC : 220—230V ~ 50Hz 3W
Australian model : AC : 240V ~ 50Hz 3W

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

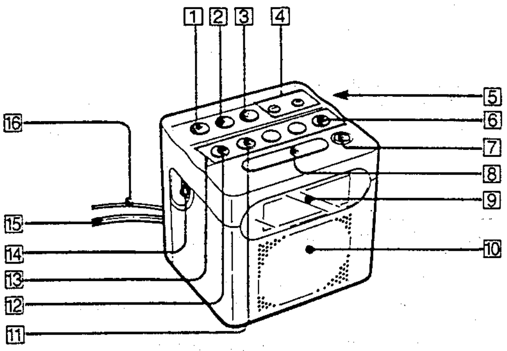
ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SECTION 1
GENERAL

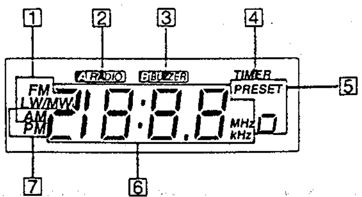
This section is extracted from instruction manual.

Location of Controls



1. ALARM RESET/RADIO OFF button
2. SLEEP/RADIO ON button
3. BAND button
4. TIME SET/TUNE (tuning) + and – buttons
5. VOL (volume) control (right side)
6. ALARM MODE button
7. TIMER (count down timer) button
8. REPEAT ALARM/SLEEP OFF bar
9. Display window
10. Speaker
11. B BUZZER ALARM button
12. A RADIO ALARM (WAKE UP STATION) button
13. Preset number 1 – 5 buttons
14. ENTER/CLOCK button
15. AC power cord
16. FM wire antenna

Display window

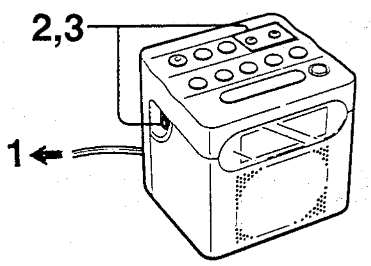


Display window

1. Band indication
2. A RADIO alarm indication
3. B BUZZER alarm indication
4. TIMER indication
5. PRESET number indication
6. Time/frequency indication
7. AM/PM indication (North and South American and UK model only)

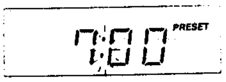
Setting the Time

After connecting the AC power cord, be sure to set the time.



1 **Connect the AC power cord to a wall outlet.**
Time indication appears and flashes in the display window.

2 **While keeping the ENTER/CLOCK button pressed, press the TIME SET/TUNE + or – button to set the time.**
The + button advances the hour and minute digits and the – button reverses them. Keep pressing the + or – button to advance or reverse the digit rapidly.



3 **Release the ENTER/CLOCK button.**
The clock starts operating.

12-hour system (North and South American and UK model)	24-hour system (Other models)
AM 12:00 = midnight PM 12:00 = noon	0:00 = midnight 12:00 = noon

(The illustrations of the time indication in this manual are for models with 24-hour system.)

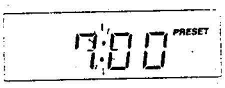
Zero second adjustment
At step 3, release the ENTER/CLOCK button with the time signal.

Note on the Time indication

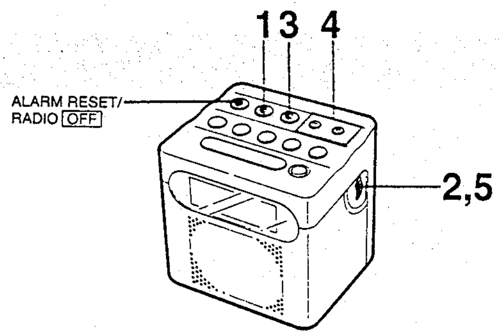
When the radio is on, ":" of the time indication is lit, and when the radio is off, the ":" is flashing.

Radio is on.

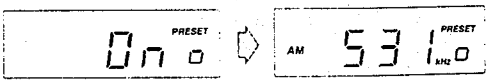
Radio is off.



Radio Operation (Manual Tuning)



1 **Press the SLEEP/RADIO ON button.**
The band, frequency and the preset number of the station before the radio was turned off appear in the display window. After 10 seconds, the indication becomes the current time.

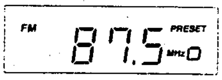


2 **Turn the VOL control a little to get sound.**

3 **Press the BAND button to select the band.**
Each press of the BAND button changes the band in the following order.

→ LW → AM (MW) → FM →

(The display window shows the last frequency chosen in each band.)



4 **Tune in the station you want by pressing the TIME SET/ TUNE + or – button.**
The FM tuning interval is set to 0.1 MHz and the AM tuning interval is set to 10 kHz for models for North and South America.
The FM tuning interval is set to 0.05 MHz and the AM tuning interval is set to 9 kHz for models for other countries. (The FM frequency indication changes every 0.1 MHz.) The LW tuning interval alternates between 2 kHz and 7 kHz.
A beep sounds at the band edge.

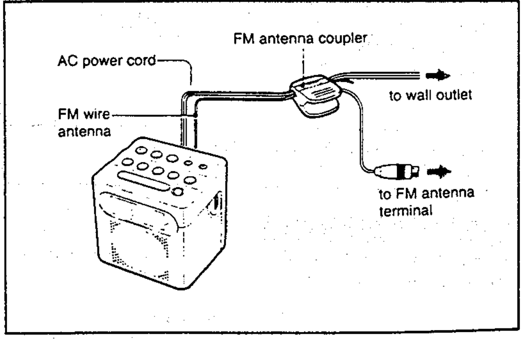
5 **Adjust volume.**

Radio Operation (Manual Tuning)

To turn off the radio
Press the ALARM RESET/RADIO OFF button.

To improve reception
FM: Extend the FM wire antenna fully to increase the FM sensitivity.
AM (MW)/LW: Since the reception is affected by the position of the radio, rotate the unit horizontally for optimum reception.

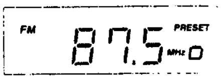
For the customers supplied with an FM antenna coupler
Pinch the FM wire antenna and the AC power cord together with the coupler supplied and connect it to a wall FM antenna terminal for optimum FM reception.



To check the station you are listening to
Press the + button lightly. The band and frequency appear for 10 seconds.

Notes

- When you turn on the radio or change the frequency, the display shows the band and frequency for 10 seconds, then it shows the current time.
- When you tune in the frequency which is not included in the preset stations, the PRESET number in the display shows 0 (out).



- If the A RADIO alarm time comes while listening to the radio, the station changes to that preset in number 1.

Radio Operation (Preset Tuning)

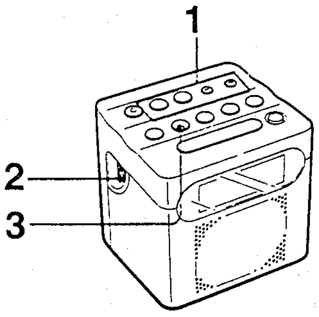
You can preset up to five FM/AM (MW)/LW stations (one station for each number button 1 to 5).

Note

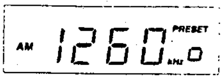
When you use the radio alarm, preset the station you want for the alarm in preset button 1, as the PRESET 1 station is the wake up station.

Presetting the Station

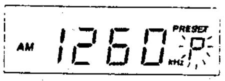
Example: To set AM (MW) 1,260 kHz in preset button 2



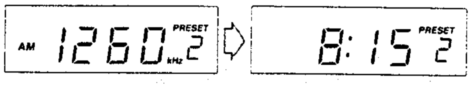
1 **Tune in the AM (MW) 1,260 kHz (see "Radio Operation (Manual Tuning)").**



2 **Press the ENTER/CLOCK button.**
The P indication flashes for 10 seconds.



3 **While P is flashing, press the 2 button.**
The P indication becomes 2 (the preset number) and the beeps sound.
The station is preset.
Though the indication becomes the current time after 10 seconds, the preset number remains.



4 **Repeat steps 1 to 3 for each stations to be preset.**

To change the preset station
Preset a new station in the number of which you want to change the station. The previous station is canceled.

Radio Operation (Preset Tuning)

Tuning in a Preset Station

1 **Press the RADIO ON button to turn on the radio.**

2 **Press the preset number button of the station.**
The band, frequency and preset number appear in the display window. After 10 seconds, the indication becomes the current time.
The preset number remains.

To turn off the radio
Press the RADIO OFF button.

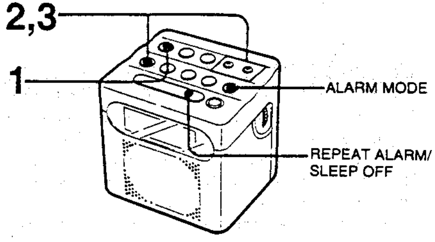
To check the station you are listening to
Press the preset number button.
The band and frequency appear for 10 seconds.

Setting the Alarm

You can set the radio and buzzer alarms. The wake up station is that preset in number 1.

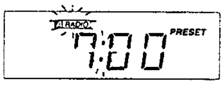
Setting the Alarm Time

To set the A RADIO alarm time at 7:00 AM



1 **Turn off the radio.**

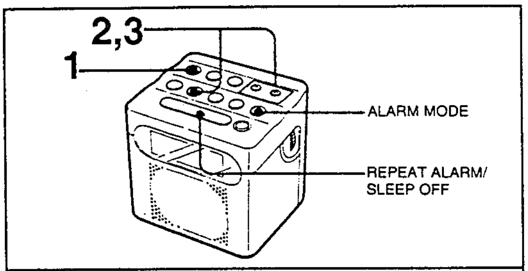
2 **While keeping the A RADIO ALARM button pressed, set the time by pressing the TIME SET/ TUNE + or – button.**



3 **Release the A RADIO ALARM button.**
The alarm time is set. The indication becomes the current time.

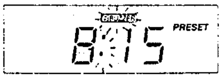
Setting the Alarm

To set the B BUZZER alarm time at 8:15 AM



1 **Turn off the radio.**

2 **While keeping the B BUZZER ALARM button pressed, set the time by pressing the TIME SET/ TUNE + or – button.**



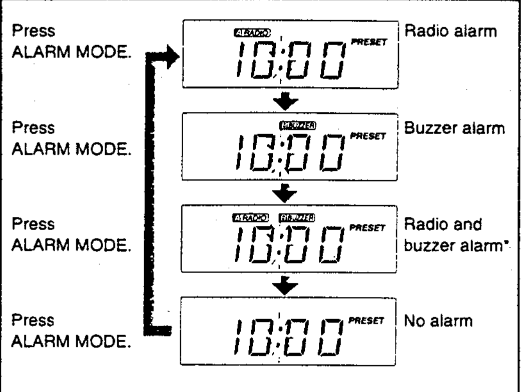
3 **Release the B BUZZER ALARM button.**
The alarm time is set. The indication becomes the current time.

Notes

- The wake up station is the PRESET 1 station. Preset the station you want for the radio alarm in preset button 1.
- When you set both A RADIO and B BUZZER alarms continuously, perform from step 2 above.

Setting the Alarm

Press the ALARM MODE button until the alarm you want appears in the display window.
Each time you press the button, the alarm indication changes as follows.



Press ALARM MODE. — Radio alarm

Press ALARM MODE. — Buzzer alarm

Press ALARM MODE. — Radio and buzzer alarm*

Press ALARM MODE. — No alarm

* If you set the radio alarm and buzzer alarm at the same time, the radio alarm sounds.

- The selected alarm sounds at the time you set, and automatically turns off after 59 minutes, unless you turn it off.
- When the radio alarm comes on, A RADIO indication flashes. If you want to keep on listening to radio and stop flashing, press the RADIO ON button.

Setting the Alarm

To stop the alarm
Press the ALARM RESET/RADIO OFF button.
The alarm will sound at same time the next day.

To cancel the alarm
Press the ALARM MODE button until neither A RADIO nor B BUZZER appears in the display window.

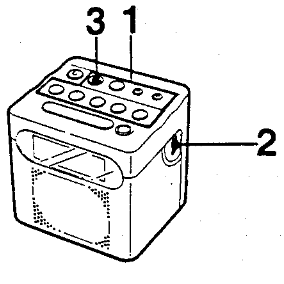
Using the Snooze Alarm Function

When you awake to the alarm but want to stay in bed for a few more minutes, press the REPEAT ALARM/SLEEP OFF bar.
The alarm will be silenced but will come on again after about 8 minutes. If you want to snooze more, press the bar again. You can use the snooze alarm function for about one hour.
When the snooze alarm function is operating, the alarm indication flashes.

Using the Sleep Timer

By setting the sleep timer, you can fall asleep to the radio sound. The radio turns off after the preset time has passed. You can set the sleep timer of 90, 60, 30, or 15 minutes.

Setting the Sleep Timer



1 **Turn on the radio and tune in the desired station.**
See "Radio Operation".

2 **Adjust volume.**

(to be continued)

Using the Sleep Timer

3 Press the SLEEP/RADIO ON button until the minutes indication you want appears in the display window.

Each time you press the button, the operation time becomes shorter.

To turn off the radio after 60 minutes — 60

The sleep timer is set and the indication becomes the band and frequency, then the current time after 10 seconds each.

Sleep timer operation time

Press SLEEP/ RADIO ON	Indication	Operation time
once	On	Radio on
twice	90	90 minutes
three times	60	60 minutes
four times	30	30 minutes
five times	15	15 minutes
six times	20:30	Radio off

To use both sleep timer and alarm function

Operate in the following order to fall asleep to the radio sound and be awoken by the radio/buzzer alarm at the preset time.

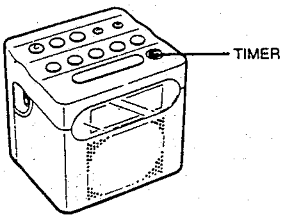
1 **Set the alarm.** (See "Setting the Alarm".)

2 **Set the sleep timer.** (See "Using the Sleep Timer".)

Using the Count Down Timer

Use the count down timer as a reminder. The beep sounds for 1 minute when the preset time has passed. The beep sounds when the radio is either on or off.
You can set the timer of 3, 5, 10, 15, 30, or 60 minutes.

Setting the Timer



Press the TIMER button. While the TIMER indication is flashing, press the TIMER button until the time you want the beep to sound appears.

Each time you press the button, the indication changes:

→ 03 → 05 → 10 → 15 → 30 → 60 → OFF (no timer) ┐

To set the 15 minutes timer — 15

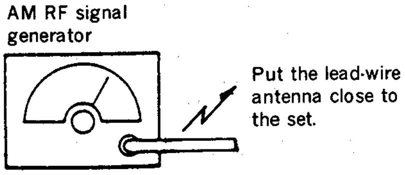
The timer is set. When the radio is off, the indication becomes the current time.
When the radio is on, the indication becomes the frequency, then becomes the current time after 10 seconds.
When the preset time has passed, the TIMER indication flashes and beep sounds. The radio is turned off.

To change the timer setting time

Press the TIMER button until the time you want appears.
The indication starts from 03 again.

SECTION 2
ELECTRICAL ADJUSTMENTS

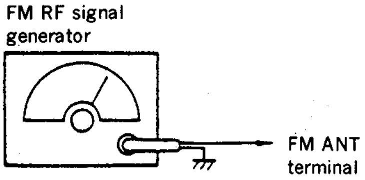
AM Section


AM RF signal generator

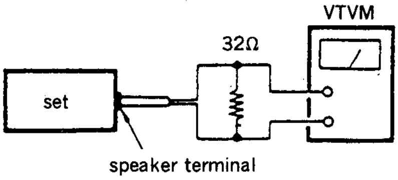
Put the lead-wire antenna close to the set.

30 % amplitude modulation by 400Hz signal
Output level: as low as possible

FM Section


FM RF signal generator
FM ANT terminal

±22.5kHz frequency deviation by 400Hz signal
Output level: as low as possible


VTVM
32Ω
set
speaker terminal

- Repeat the procedures in each adjustment several times, and the tracking adjustments should be fimally the trimmer capacitors.

( ): EXCEPT US, CND model

AM IF ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
T1	450kHz

Note: Receive 530kHz (531kHz).

AM VCO VOLTAGE ADJUSTMENT		
Adjustment Part	Frequency Display	Reading on Digital voltmeter
L5	530kHz (531kHz)	1.2V
(confirmation)	1,710kHz (1,602kHz)	Less than 9V (Less than 8V)

Note: Not use the AM RF sigmal generator in this adjustment.

AM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
CT1	L2
1,490kHz (1,404kHz)	580kHz (621kHz)

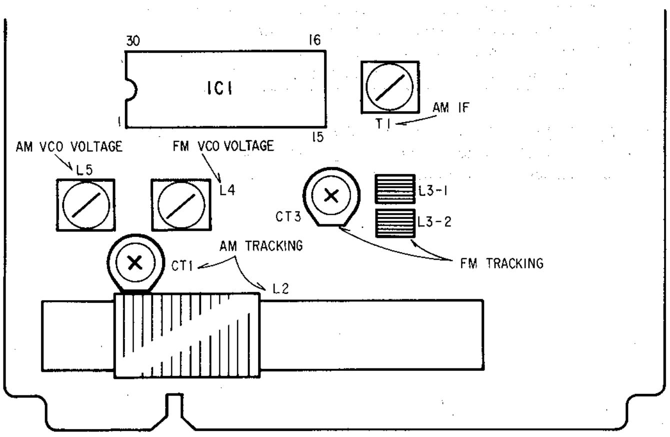
FM VCO VOLTAGE ADJUSTMENT		
Adjustment Part	Frequency Display	Reading on Digital voltmeter
L4	108MHz	10±1.0V
(confirmation)	87.5MHz	More than 1.8V (Standard 2.2V)

Note: Not use the FM sigmal generator in this adjustment.

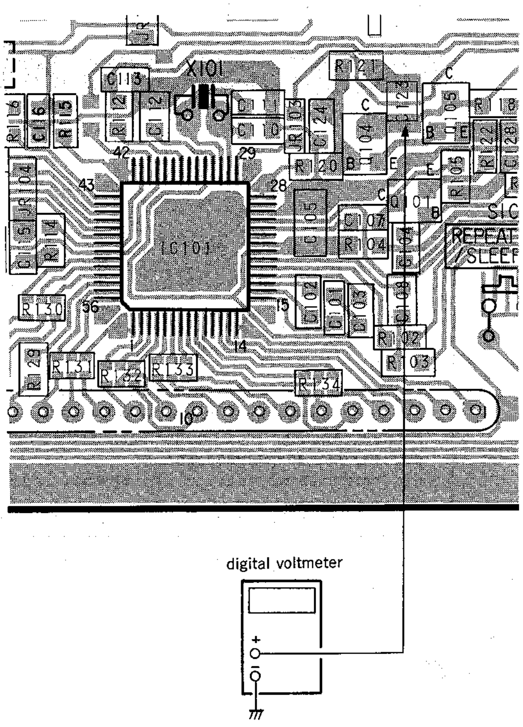
FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
CT3	L3-1, L3-2
108MHz	87.5MHz

Adjustment Location:

【MAIN BOARD】 —COMPONENT SIDE—

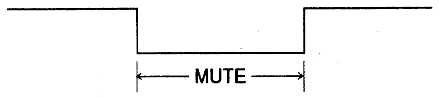

30
16
IC1
1
15
T1
AM IF
AM VCO VOLTAGE
L5
FM VCO VOLTAGE
L4
CT3
L3-1
L3-2
AM TRACKING
CT1
L2
FM TRACKING

【KEY BOARD】 —CONDUCTOR SIDE—


X101
IC101
C113
R121
42
29
43
28
56
15
14
R120
R130
R131
R132
R133
R134
R102
R103
REPEAT
SLEEP
digital voltmeter
+

SECTION 3
PIN DESCRIPTION

IC101 μ PD1724GB-589-1A7

Pin No.	Pin Name	Signal Name	I/O	Description
1-10	LCD10-LCD1	LCD10-LCD1	O	LCD drive
11	NC		—	
12-14	COM3-COM1	COM3-COM1	O	LCD common
15	VSS3		—	Pin for doubler circuit capacitor connection to develop LCD drive voltage
16	CAP2			
17	CAP1			
18	VSS2			
19	VDP	$\overline{\text{MUTE}}$	O	Audio signal mute. Active : Low. LOW when MUTE ON. 
20	CGP	BEEP	O	Activates buzzer.
21	NC		—	
22	VDD		—	3V power supply input terminal
23	VCOH		I	Unused pin
24	VCOM	FM VCO	I	FM VCO input
25	VCOL	AM VCO	I	AM VCO input
26	VSS1		—	GND
27	EO1		O	PLL error output pin
28	EO2			
29	CE	CE	I	Detects power supply line status. Power supply line OFF : Low Power supply line ON : High
30	XO		O	Crystal oscillator connection pin
31	XI		I	
32	VSS4		—	Pin for regulator circuit capacitor connection to attain stable drive voltage of the oscillator
33	PA3	AC/DC	I	AC/DC sellect input AC : High DC : Low
34	PA2	ALARM OUT	O	Unused pin
35	PA1	TV OUT	O	Unused pin
36	PA0	BATT/BAND AM	I/O	BATTERY CHECK input, BAND FM/AM output FM : Low AM : High
37	PB3	LIGHT	O	Unused pin
38	PB2	POWER	O	Unused pin
39	PB1	INITIALIZE	O	KEY IN control output
40	PB0	BAND LOW/TV H	O	Unused pin
41-44	PC3-PC0	KEY SOURCE	O	Conducts Key Scan
45-48	K3-K0	KEY RETURN	I	Key Return input
49, 50	NC		—	
51-56	LCD16-LCD11	LCD16-LCD11	O	LCD drive

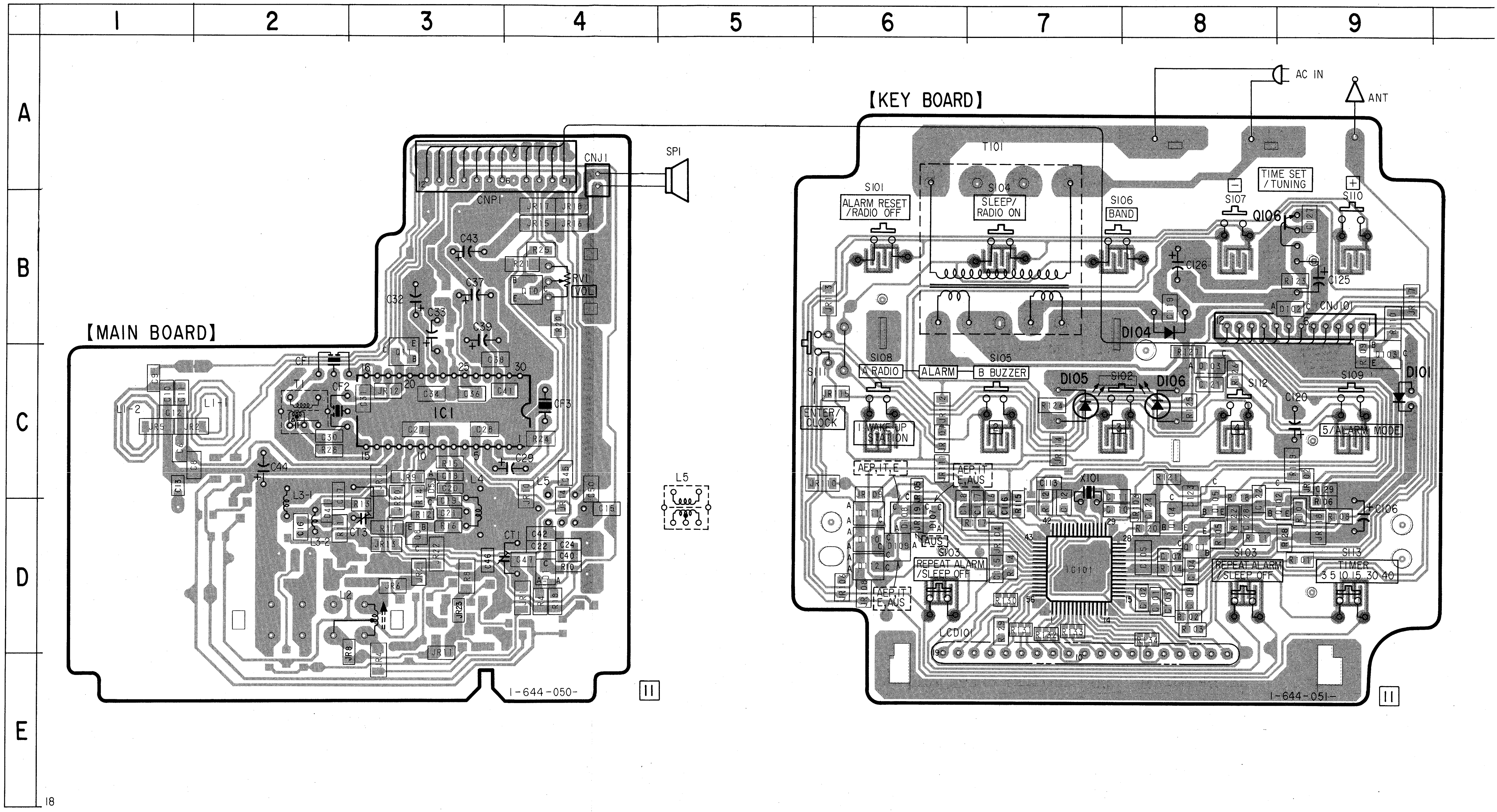
SECTION 4
DIAGRAMS

4-1. PRINTED WIRING BOARD

• See page 16 for semiconductor Lead Layouts.

● Semiconductor Location

Ref. No.	Location
D1	D-4
D4	D-2
D5	C-3
D102	B-9
D103	C-8
D104	B-8
D105	C-7
D106	C-8
D107	D-6
D108	D-6
D109	D-6
D110	D-6
D111	D-6
D112	D-6
IC1	C-3
IC101	D-7
Q8	D-3
Q10	B-4
Q11	C-3
Q101	D-8
Q102	D-9
Q103	C-9
Q104	D-8
Q105	D-8
Q106	B-9



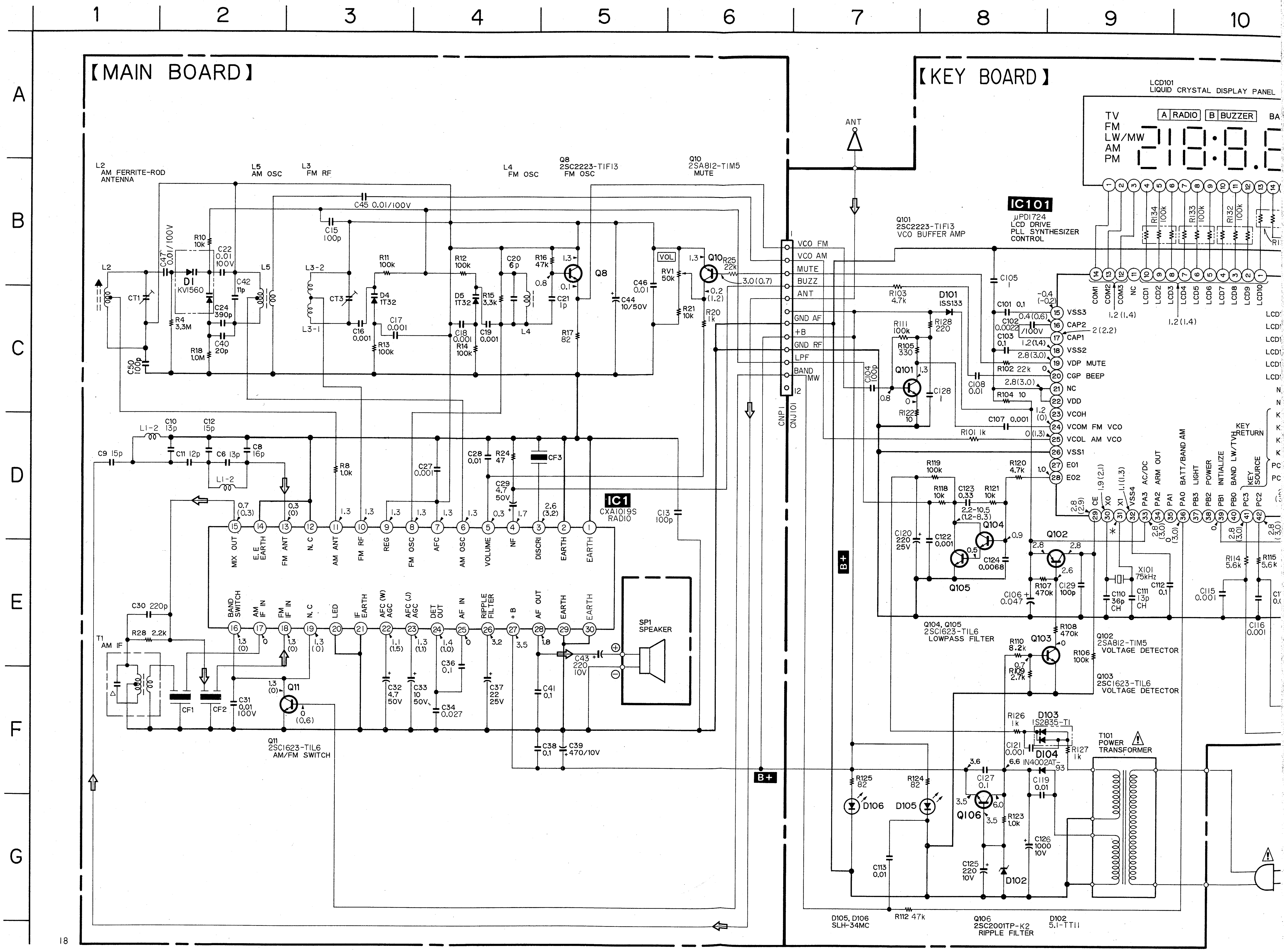
1
2
3
4
5
6
7
8
9
A
B
C
D
E
【MAIN BOARD】
【KEY BOARD】
CNJ1
SP1
CNP1
C43
C37
C32
C33
C39
RV1
VOL
Q10
Q11
CF1
CF2
CF3
T1
L1-1
L1-2
IC1
C29
C44
L3-1
L3-2
CT3
L4
L5
CT1
L2
C46
1-644-050-
11
AC IN
ANT
T101
S101
ALARM RESET /RADIO OFF
S104
SLEEP/ RADIO ON
S106
BAND
S107
TIME SET /TUNING
S110
Q106
C126
C125
CNJ101
D104
S108
A RADIO
ALARM
S105
B BUZZER
D105
S102
D106
S112
S109
D101
S111
ENTER/ CLOCK
WAKE UP STATION
C120
5/ALARM MODE
AEP,IT,E
AEP,IT E,AUS
X101
IC101
C106
AUS
S103
REPEAT ALARM /SLEEP OFF
S113
TIMER
3 5 10 15 30 40
AEP,IT E,AUS
LCD101
1-644-051-
11
18

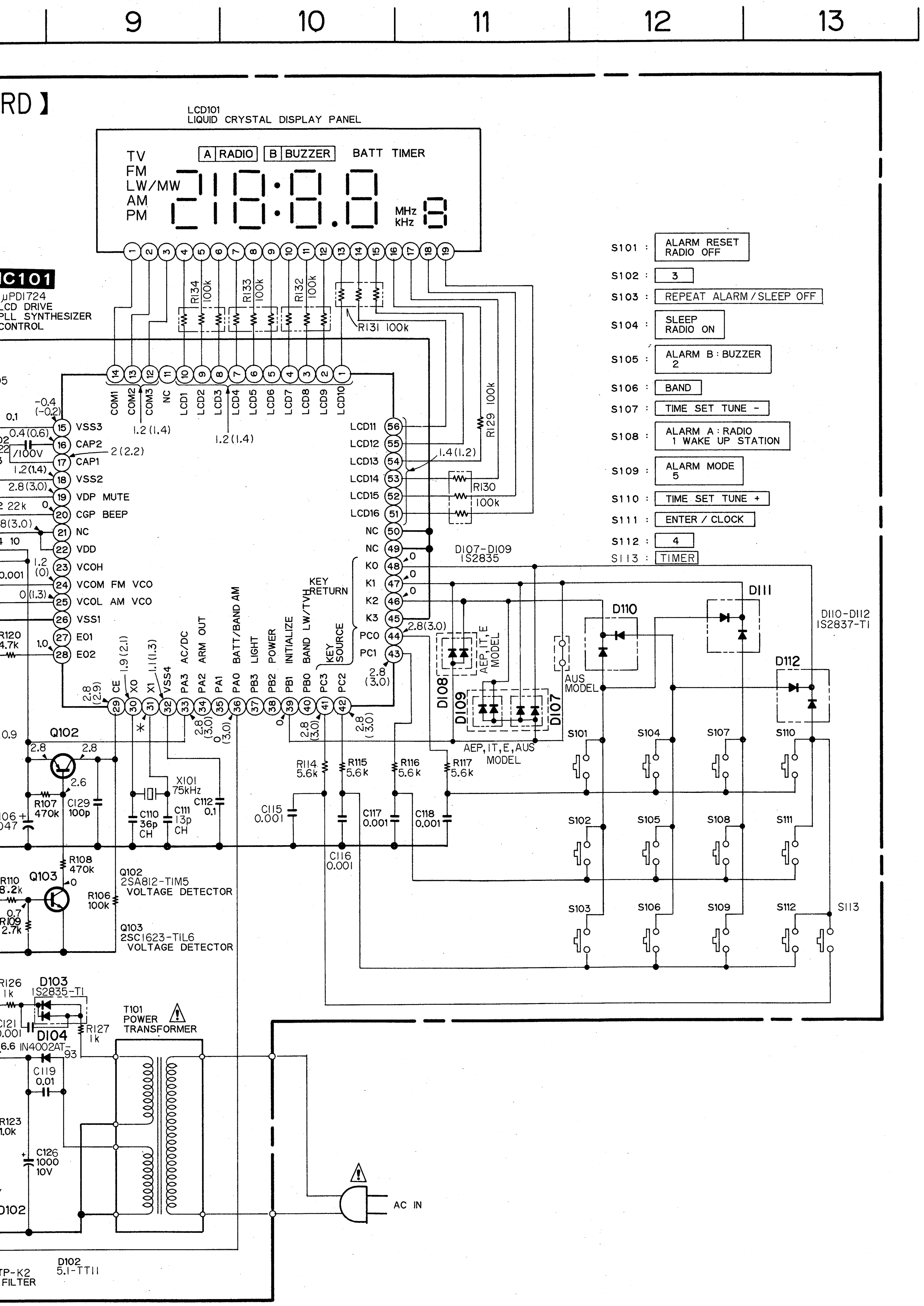
Note:

- ○—— : parts extracted from the component side.

CND : Canadian
IT : Italian
AUS : Australian

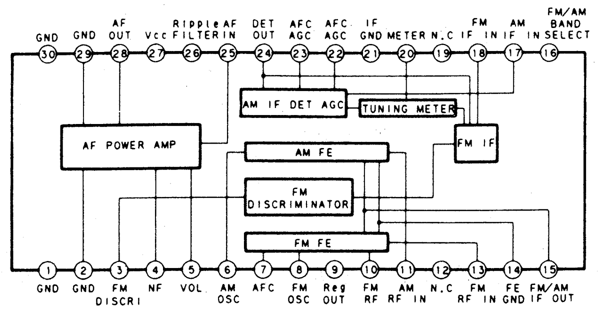
4-2. SCHEMATIC DIAGRAM


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
【MAIN BOARD】
【KEY BOARD】
L2 AM FERRITE-ROD ANTENNA
L5 AM OSC
L3 FM RF
L4 FM OSC
Q8 2SC2223-TIF13 FM OSC
Q10 2SA812-TIM5 MUTE
C45 0.01/100V
C15 100p
C47 0.01/100V
R10 10k
C22 0.01 100V
D1 KV1560
C42 11p
C24 390p
C40 20p
R4 3.3M
R18 1.0M
CT1
C50 100p
L3-2
L3-1
CT3
R11 100k
D4 1T32
C17 0.001
C16 0.001
R13 100k
R12 100k
D5 1T32
R15 3.3k
C18 0.001
R14 100k
C19 0.001
C20 6p
R16 47k
C21 1p
R17 82
Q8
C46 0.01
C44 10/50V
VOL
RV1 50k
Q10
R25 22k
R21 10k
R20 1k
3.0 (0.7)
ANT
VCO FM
VCO AM
MUTE
BUZZ
ANT
GND AF
+B
GND RF
LPF
BAND MW
CNP1
CNJ101
L1-2
C10 13p
C12 15p
C9 15p
C11 12p
C6 13p
C8 16p
R8 1.0k
C27 0.001
C28 0.01
R24 47
CF3
C29 4.7 50V
IC1 CXA1019S RADIO
C13 100p
MIX OUT
E.E EARTH
FM ANT
N.C
AM ANT
FM RF
REG
FM OSC
AFC
AM OSC
VOLUME
NF
DISCRI
EARTH
EARTH
BAND SWITCH
AM IF IN
FM IF IN
N.C
LED
IF EARTH
AFC (W) AGC
AFC (J) AGC
DET OUT
AF IN
RIPPLE FILTER
+B
AF OUT
EARTH
EARTH
SP1 SPEAKER
C30 220p
R28 2.2k
T1 AM IF
CF1
CF2
C31 0.01 100V
Q11
Q11 2SC1623-TIL6 AM/FM SWITCH
C32 4.7 50V
C33 10 50V
C34 0.027
C36 0.1
C37 22 25V
C41 0.1
C43 220 10V
C38 0.1
C39 470/10V
B+
LCD101 LIQUID CRYSTAL DISPLAY PANEL
TV
FM
LW/MW
AM
PM
A RADIO
B BUZZER
IC101 μPD1724 LCD DRIVE PLL SYNTHESIZER CONTROL
Q101 2SC2223-TIF13 VCO BUFFER AMP
R134 100k
R133 100k
R132 100k
COM1
COM2
COM3
NC
LCD1
LCD2
LCD3
LCD4
LCD5
LCD6
LCD7
LCD8
LCD9
LCD10
C105 1
R103 4.7k
D101 1SS133
C101 0.1
C102 0.0022 /100V
C103 0.1
R111 100k
R128 220
R105 330
Q101
C104 100p
C128 1
C108 0.01
R122 10
R102 22k
R104 10
C107 0.001
R101 1k
VSS3
CAP2
CAP1
VSS2
VDP MUTE
CGP BEEP
NC
VDD
VCOH
VCOM FM VCO
VCOL AM VCO
VSS1
EO1
EO2
CE
XO
XI
VSS4
PA3 AC/DC
PA2 ARM OUT
PA1
PA0 BATT/BAND AM
PB3 LIGHT
PB2 POWER
PB1 INITIALIZE
PB0 BAND LW/TV
PC3 KEY SOURCE
PC2
KEY RETURN
R119 100k
R118 10k
C123 0.33
R121 10k
R120 4.7k
C120 220 25V
C122 0.001
Q104
Q105
C124 0.0068
Q102
R107 470k
C129 100p
C106 0.047
X101 75kHz
C110 36p CH
C111 13p CH
C112 0.1
C115 0.001
C116 0.001
R114 5.6k
R115 5.6k
Q104, Q105 2SC1623-TIL6 LOWPASS FILTER
R110 8.2k
R109 2.7k
Q103
R108 470k
R106 100k
Q102 2SA812-TIM5 VOLTAGE DETECTOR
Q103 2SC1623-TIL6 VOLTAGE DETECTOR
R126 1k
D103 1S2835-T1
C121 0.001
D104 1N4002AT
R127 1k
T101 POWER TRANSFORMER
R125 82
R124 82
D106
D105
C127 0.1
Q106
R123 1.0k
C119 0.01
C126 1000 10V
C113 0.01
C125 220 10V
D102
R112 47k
D105, D106 SLH-34MC
Q106 2SC2001TP-K2 RIPPLE FILTER
D102 5.1-TT11
18


9
10
11
12
13
RD】
LCD101
LIQUID CRYSTAL DISPLAY PANEL
TV
FM
LW/MW
AM
PM
A RADIO
B BUZZER
BATT TIMER
MHz
kHz
IC101
µPD1724
LCD DRIVE
PLL SYNTHESIZER
CONTROL
R134 100k
R133 100k
R132 100k
R131 100k
R129 100k
R130 100k
S101 : ALARM RESET RADIO OFF
S102 : 3
S103 : REPEAT ALARM / SLEEP OFF
S104 : SLEEP RADIO ON
S105 : ALARM B : BUZZER 2
S106 : BAND
S107 : TIME SET TUNE −
S108 : ALARM A : RADIO 1 WAKE UP STATION
S109 : ALARM MODE 5
S110 : TIME SET TUNE +
S111 : ENTER / CLOCK
S112 : 4
S113 : TIMER
D107-D109 1S2835
D110-D112 1S2837-T1
D110
D111
D112
D108
D109
D107
AEP, IT, E MODEL
AUS MODEL
AEP, IT, E, AUS MODEL
KEY RETURN
KEY SOURCE
Q102
Q103
X101 75kHz
Q102 2SA812-TIM5 VOLTAGE DETECTOR
Q103 2SC1623-TIL6 VOLTAGE DETECTOR
D103 1S2835-T1
D104 1N4002AT-
T101 POWER TRANSFORMER
AC IN
D102 5.1-TT11
TP-K2 FILTER

• IC Block Diagram

IC1 CXA1019S


GND
GND
AF OUT
Vcc
Ripple FILTER
AF IN
DET OUT
AFC AGC
AFC AGC
IF GND
METER
N.C
FM IF IN
AM IF IN
FM/AM BAND SELECT
AF POWER AMP
AM IF DET AGC
TUNING METER
FM IF
AM FE
FM DISCRIMINATOR
FM FE
GND
GND
FM DISCRI
NF
VOL
AM OSC
AFC
FM OSC
Reg OUT
FM RF
AM RF IN
N.C
FM RF IN
FE GND
FM/AM IF OUT

Note:

- All capacitors are in µF unless otherwise noted. pF: µµF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $^1/_4$W or less unless otherwise specified.
- △ : internal component.

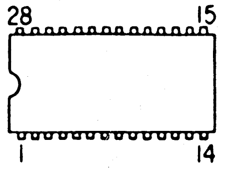
Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
  (   ) : AM
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM

CND : Canadian
IT : Italian
AUS : Australian

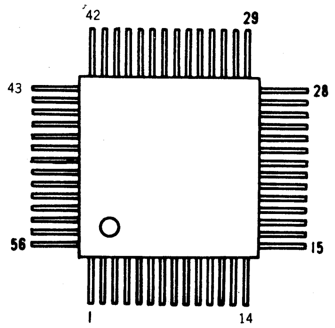
4-3. SEMICONDUCTOR LEAD LAYOUTS

CXA1019S



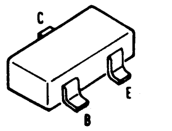
(Top view)

μPD1724GB-589-1A7

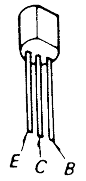


MARKING SIDE VIEW

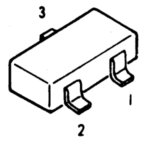
2SA1162-G
2SC1623-L5L6
2SC2223-F13
2SC2223-F14



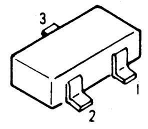
2SC2001-LK



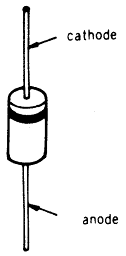
KV1560
MA152WK



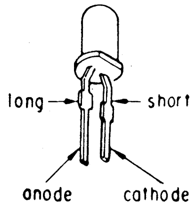
1S2836



10E2



GL3EG8

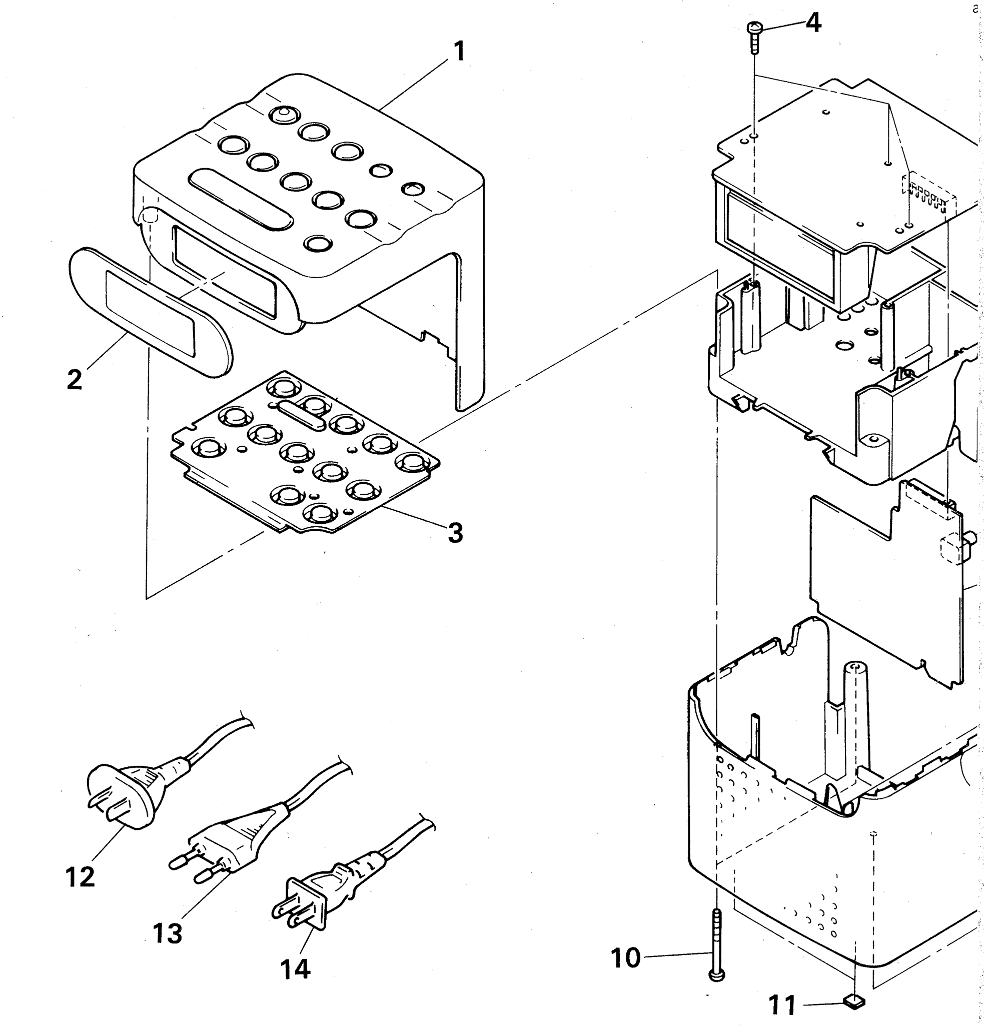


SECTION 5
EXPLODED VIEWS

NOTE:
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE(WHITE)...(RED)
  ↑ ↑
  Parts color Cabinet's color

- Items marked " ∗ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- hardware (#mark) list is given in the last of this parts list.

AEZ : A
5AEZ : N



Ref. No.	Part No.	Description	Remark
1	A-3635-732-A	CABINET (UPPER) ASSY	
2	3-377-637-01	PANEL	
3	1-692-143-11	SWITCH, RUBBER KEY	
4	7-685-648-79	SCREW +P 3X12 TYPE2 NON-SLIT	
∗ 5	A-3661-556-A	KEY BOARD, COMPLETE (US, Canadian)	
∗ 5	A-3661-592-A	KEY BOARD, COMPLETE (AUS)	
∗ 5	A-3661-594-A	KEY BOARD, COMPLETE (AEP, IT, E)	
∗ 6	3-377-644-01	CHASSIS	
7	3-368-840-21	KNOB (VOL)	
∗ 8	A-3661-553-A	MAIN BOARD, COMPLETE	

Ref. No.	Part No.	Descri
9	3-377-643-01	CABINE
9	3-377-643-11	CABINE
9	3-377-643-21	CABINE
10	7-685-154-19	SCREW
11	3-368-852-01	FOOT
⚠12	1-559-912-11	CORD,
⚠13	1-555-795-00	CORD,
⚠14	1-696-008-31	CORD,
SP1	1-503-082-00	SPEAKE

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

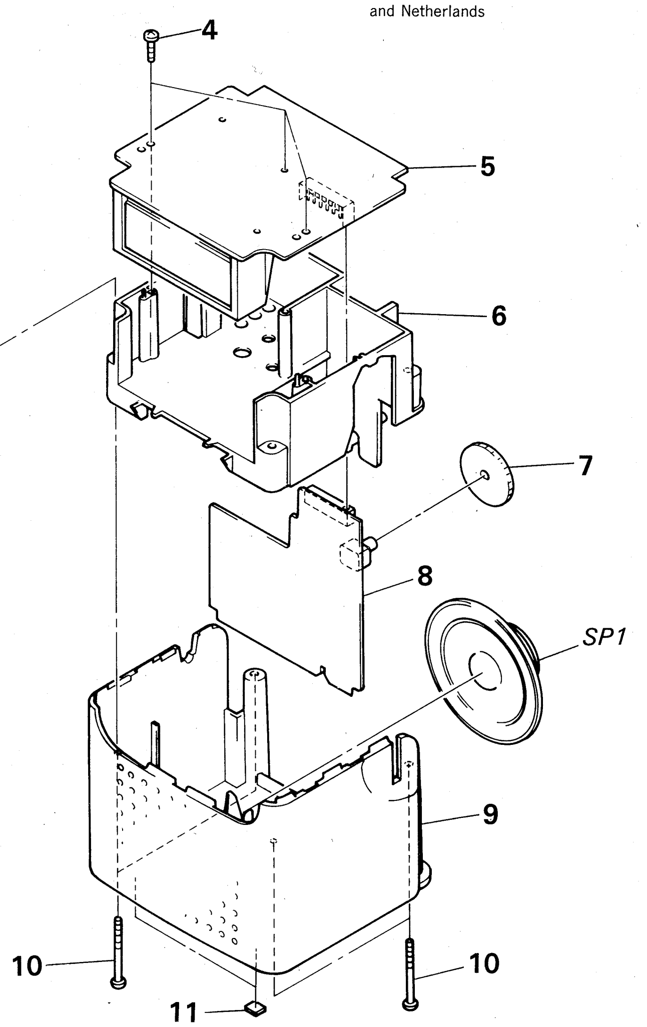
SECTION 5
XPLODED VIEWS

ems marked " ∗ " are not stocked
nce they are seldom required for
utine service. Some delay should be
nticipated when ordering these items.
ne mechanical parts with no reference
umber in the exploded views are not
ipplied.
ardware (#mark) list is given in the
st of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

AEZ : AEP
5AEZ : North European and Austria and Netherlands
IT : Italian
AUS : Australian



Remark

)

Ref. No.	Part No.	Description	Remark
9	3-377-643-01	CABINET (LOWER) (US, Canadian)	
9	3-377-643-11	CABINET (LOWER) (AEP, IT, E)	
9	3-377-643-21	CABINET (LOWER) (AUS)	
10	7-685-154-19	SCREW +P 3X35 TYPE2 NON-SLIT	
11	3-368-852-01	FOOT	
⚠12	1-559-912-11	CORD, POWER (AUS)	
⚠13	1-555-795-00	CORD, POWER (AEP, IT, E)	
⚠14	1-696-008-31	CORD, POWER (US, Canadian)	
SP1	1-503-082-00	SPEAKER	

ntifiés par une
tiques pour la

que par une
néro spécifé.

SECTION 6
ELECTRICAL PARTS LIST

KEY

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:μ, for example:
  uA..: μA.. uPA..: μPA..
  uPB..: μPB.. uPC..: μPC.. uPD..: μPD..
- CAPACITORS
  uF: μF
- COILS
  uH: μH

When indicating parts by reference number, please include the board.

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

CND : Canadian
AEZ : AEP
5AEZ : North European and Austria and Netherlands
IT : Italian
AUS : Australian

Ref. No.	Part No.	Description	Remark
*	A-3661-556-A	KEY BOARD, COMPLETE (US, CND)	
*	A-3661-594-A	KEY BOARD, COMPLETE (AEP, IT, E)	
*	A-3661-592-A	KEY BOARD, COMPLETE (AUS)	
		******************	
*	3-377-639-01	HOLDER (LCD)	
	3-380-732-01	HOLDER (CRYSTAL)	
		< CAPACITOR >	
C101	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C102	1-164-161-11	CERAMIC CHIP 0.0022uF 10%	100V
C103	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C104	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C105	1-162-638-11	CERAMIC CHIP 1uF	16V
C106	1-125-701-11	CAP, DOUBLE LAYEYER	0.047F
C107	1-163-141-00	CERAMIC CHIP 0.001uF 5%	50V
C108	1-164-232-11	CERAMIC CHIP 0.01uF 10%	50V
C110	1-163-106-00	CERAMIC CHIP 36PF 5%	50V
C111	1-163-096-00	CERAMIC CHIP 13PF 5%	50V
C112	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V
C113	1-164-232-11	CERAMIC CHIP 0.01uF 10%	50V
C115	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V
C116	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V
C117	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V
C118	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V
C119	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C120	1-128-483-11	ELECT 220uF 20%	25V
C121	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C122	1-163-141-00	CERAMIC CHIP 0.001uF 5%	50V
C123	1-164-006-11	CERAMIC CHIP 0.33uF 10%	16V
C124	1-163-019-00	CERAMIC CHIP 0.0068uF 10%	50V
C125	1-126-176-11	ELECT 220uF 20%	10V
C126	1-124-473-11	ELECT 1000uF 20%	10V
C127	1-163-038-00	CERAMIC CHIP 0.1uF	25V

Ref. No.	Part No.	Description	Remark
C128	1-164-346-11	CERAMIC CHIP 1uF	16V
C129	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
		< JACK >	
* CNJ101	1-695-232-11	PIN, CONNECTOR (PC BOARD) 12P	
		< DIODE >	
D101	8-719-028-22	DIODE 1SS133-T95	
D102	8-719-978-16	DIODE DTZ4.7A	
D103	8-719-104-34	DIODE 1S2836	
D104	8-719-200-02	DIODE 10E2	
D105	8-719-936-66	LED GL3EG8	
D106	8-719-936-66	LED GL3EG8	
D107	8-719-104-34	DIODE 1S2836 (AEP, IT, E, AUS)	
D108	8-719-104-34	DIODE 1S2836 (AEP, IT, E,)	
D109	8-719-104-34	DIODE 1S2836 (AEP, IT, E, AUS)	
D110	8-719-400-18	DIODE MA152WK	
D111	8-719-400-18	DIODE MA152WK	
D112	8-719-400-18	DIODE MA152WK	
		< IC >	
IC101	8-759-073-89	IC uPD1724GB-589-1A7	
		< JUMPER RESISTOR >	
JR102	1-216-295-00	METAL CHIP 0 5%	1/10W
JR103	1-216-295-00	METAL CHIP 0 5%	1/10W
JR104	1-216-296-00	METAL CHIP 0 5%	1/8W
JR105	1-216-295-00	METAL CHIP 0 5%	1/10W
JR106	1-216-295-00	METAL CHIP 0 5%	1/10W
JR107	1-216-295-00	METAL CHIP 0 5%	1/10W
JR108	1-216-295-00	METAL CHIP 0 5%	1/10W
JR109	1-216-295-00	METAL CHIP 0 5%	1/10W
JR110	1-216-296-00	METAL CHIP 0 5%	1/8W
JR111	1-216-295-00	METAL CHIP 0 5%	1/10W

Ref. No.	Part No.	Description	Remark
JR112	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR113	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR114	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR115	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR117	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR118	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR119	1-216-295-00	METAL CHIP 0 5% 1/10W	(AUS)

< LCD >

Ref. No.	Part No.	Description	Remark
LCD101	1-809-707-11	DISPLAY PANEL, LIQUID CRYSTAL	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q101	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q102	8-729-216-22	TRANSISTOR 2SA1162	
Q103	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q104	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q105	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q106	8-729-142-46	TRANSISTOR 2SC2001-LK	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R101	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R102	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R103	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R104	1-216-001-00	METAL CHIP 10 5% 1/10W	
R105	1-216-037-00	METAL CHIP 330 5% 1/10W	
R106	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R107	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R108	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R109	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R110	1-216-220-00	METAL CHIP 8.2K 5% 1/8W	
R111	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R112	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R114	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R115	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R116	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R117	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R118	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R119	1-216-246-00	METAL GLAZE 100K 5% 1/8W	
R120	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R121	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R122	1-216-001-00	METAL CHIP 10 5% 1/10W	
R123	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R124	1-216-023-00	METAL CHIP 82 5% 1/10W	
R125	1-216-023-00	METAL CHIP 82 5% 1/10W	
R126	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R127	1-216-198-00	METAL CHIP 1K 5% 1/8W	
R128	1-216-033-00	METAL CHIP 220 5% 1/10W	
R129	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R130	1-236-502-11	NETWORK CHIP 100K 5%	
R131	1-236-502-11	NETWORK CHIP 100K 5%	
R132	1-236-502-11	NETWORK CHIP 100K 5%	
R133	1-236-502-11	NETWORK CHIP 100K 5%	
R134	1-236-502-11	NETWORK CHIP 100K 5%	

< SWITCH >

Ref. No.	Part No.	Description	Remark
SW101	1-692-143-11	RUBBER SWITCH (ALARM RESET/RADIO OFF)	
SW102	1-692-143-11	RUBBER SWITCH (P3)	
SW103	1-692-143-11	RUBBER SWITCH (REPEAT ALARM/SLEEP OFF)	
SW104	1-692-143-11	RUBBER SWITCH (SLEEP/RADIO ON)	
SW105	1-692-143-11	RUBBER SWITCH (ALARM B BUZZER/P2)	
SW106	1-692-143-11	RUBBER SWITCH (BANDO)	
SW107	1-692-143-11	RUBBER SWITCH (-)	
SW108	1-692-143-11	RUBBER SWITCH (ALARM A RADIO/ P1 WAKE UP STATION)	
SW109	1-692-143-11	RUBBER SWITCH (ALARM MODE/P5)	
SW110	1-692-143-11	RUBBER SWITCH (+)	
SW111	1-554-088-00	SWITCH, KEY BOARD (ENTER/CLOCK)	
SW112	1-692-143-11	RUBBER SWITCH (P4)	
SW113	1-692-143-11	RUBBER SWITCH (TIMER)	

< TRANSFORMER >

Ref. No.	Part No.	Description	Remark
⚠T101	1-450-922-11	TRANSFORMER, POWER (US,CND)	
⚠T101	1-450-923-11	TRANSFORMER, POWER (EXEPT US,CND)	

< VIBRATOR >

Ref. No.	Part No.	Description	Remark
X101	1-567-769-11	VIBRATOR, CRYSTAL	

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* A-3661-553-A MAIN BOARD, COMPLETE

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< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C6	1-163-096-00	CERAMIC CHIP 13PF 5% 50V	
C8	1-163-098-00	CERAMIC CHIP 16PF 5% 50V	
C9	1-163-097-00	CERAMIC CHIP 15PF 5% 50V	
C10	1-163-096-00	CERAMIC CHIP 13PF 5% 50V	
C11	1-163-095-00	CERAMIC CHIP 12PF 5% 50V	
C12	1-163-097-00	CERAMIC CHIP 15PF 5% 50V	
C13	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C15	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C16	1-163-141-00	CERAMIC CHIP 0.001uF 5% 50V	
C17	1-163-141-00	CERAMIC CHIP 0.001uF 5% 50V	
C18	1-163-141-00	CERAMIC CHIP 0.001uF 5% 50V	
C19	1-163-141-00	CERAMIC CHIP 0.001uF 5% 50V	
C20	1-163-089-00	CERAMIC CHIP 6PF 0.25PF 50V	
C21	1-163-083-00	CERAMIC CHIP 1PF 0.25PF 50V	
C22	1-164-232-11	CERAMIC CHIP 0.01uF 10% 100V	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

MAIN

Ref. No.	Part No.	Description	Remark
C24	1-163-131-00	CERAMIC CHIP 390PF 5%	50V
C27	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V
C28	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C29	1-124-927-11	ELECT 4.7uF 20%	100V
C30	1-163-125-00	CERAMIC CHIP 220PF 5%	50V
C31	1-164-232-11	CERAMIC CHIP 0.01uF 10%	100V
C32	1-124-927-11	ELECT 4.7uF 20%	100V
C33	1-124-907-11	ELECT 10uF 20%	50V
C34	1-163-986-00	CERAMIC CHIP 0.027uF 10%	25V
C36	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V
C37	1-126-233-11	ELECT 22uF 20%	50V
C38	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V
C39	1-124-472-11	ELECT 470uF 20%	10V
C40	1-163-100-00	CERAMIC CHIP 20PF 5%	50V
C41	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V
C42	1-163-094-00	CERAMIC CHIP 11PF 5%	50V
C43	1-126-176-11	ELECT 220uF 20%	10V
C44	1-124-907-11	ELECT 10uF 20%	50V
C45	1-164-232-11	CERAMIC CHIP 0.01uF 10%	100V
C46	1-163-059-00	CERAMIC CHIP 0.01uF 10%	50V
C47	1-164-232-11	CERAMIC CHIP 0.01uF 10%	100V
C50	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
		< FILTER >	
CF1	1-577-319-11	FILTER, CERAMIC	
CF2	1-579-312-81	FILTER, CERAMIC	
CF3	1-579-312-81	FILTER, CERAMIC	
		< JACK >	
CNJ1	1-580-181-11	SOCKET, CONNECTOR 2P	
		< CONNECTOR >	
CNP1	1-695-237-11	SOCKET, CONNECTOR(PC BOARD)12P	
		< TRIMMER >	
CT1	1-141-304-21	CAP, TRIMMER 10PF	
CT3	1-141-304-21	CAP, TRIMMER 10PF	
		< DIODE >	
D1	8-719-951-05	DIODE KV1560	
D4	8-719-949-46	DIODE 1T32	
D5	8-719-949-46	DIODE 1T32	
		< IC >	
IC1	8-752-035-29	IC CXA1019S	
		< JUMPER RESISTOR >	
JR1	1-216-296-00	METAL CHIP 0 5%	1/8W
JR2	1-216-296-00	METAL CHIP 0 5%	1/8W
JR4	1-216-296-00	METAL CHIP 0 5%	1/8W
JR5	1-216-296-00	METAL CHIP 0 5%	1/8W
JR6	1-216-295-00	METAL CHIP 0 5%	1/10W
JR7	1-216-296-00	METAL CHIP 0 5%	1/8W
JR8	1-216-295-00	METAL CHIP 0 5%	1/10W
JR9	1-216-296-00	METAL CHIP 0 5%	1/8W
JR10	1-216-295-00	METAL CHIP 0 5%	1/10W
JR11	1-216-295-00	METAL CHIP 0 5%	1/10W
JR12	1-216-295-00	METAL CHIP 0 5%	1/10W
JR13	1-216-296-00	METAL CHIP 0 5%	1/8W
JR14	1-216-295-00	METAL CHIP 0 5%	1/10W
JR15	1-216-296-00	METAL CHIP 0 5%	1/8W
JR16	1-216-296-00	METAL CHIP 0 5%	1/8W
JR17	1-216-296-00	METAL CHIP 0 5%	1/8W
JR18	1-216-296-00	METAL CHIP 0 5%	1/8W
JR20	1-216-296-00	METAL CHIP 0 5%	1/8W
JR21	1-216-295-00	METAL CHIP 0 5%	1/10W
JR22	1-216-295-00	METAL CHIP 0 5%	1/10W
JR23	1-216-295-00	METAL CHIP 0 5%	1/10W
		< COIL >	
L2	1-402-616-11	ANTENNA, FERRITE-ROD (MW)	
L3-1	1-402-654-11		
L3-2	1-402-653-11		
L4	1-460-335-11	COIL (WITH CORE)	
L5	1-406-485-11	COIL (OSC)	
		< TRANSISTOR >	
Q8	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q10	8-729-216-22	TRANSISTOR 2SA1162-G	
Q11	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
		< RESISTOR >	
R4	1-216-133-00	METAL CHIP 3.3M 5%	1/10W
R8	1-216-198-00	METAL CHIP 1K 5%	1/8W
R10	1-216-073-00	METAL CHIP 10K 5%	1/10W
R11	1-216-097-00	METAL CHIP 100K 5%	1/10W
R12	1-216-097-00	METAL CHIP 100K 5%	1/10W
R13	1-216-097-00	METAL CHIP 100K 5%	1/10W
R14	1-216-097-00	METAL CHIP 100K 5%	1/10W
R15	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
R16	1-216-089-00	METAL CHIP 47K 5%	1/10W
R17	1-216-166-00	METAL CHIP 82 5%	1/8W
R18	1-216-121-00	METAL CHIP 1M 5%	1/10W
R20	1-216-049-00	METAL CHIP 1K 5%	1/10W

Ref. No.	Part No.	Description	Remark
R21	1-216-222-00	METAL GLAZE 10K 5% 1/8W	
R24	1-216-017-00	METAL CHIP 47 5% 1/10W	
R25	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R28	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
		< VARIABLE RESISTOR >	
RV1	1-241-586-11	RES, VAR, CARBON 50K (VOL)	
		< TRANSFORMER >	
T1	1-404-790-11	TRANSFORMER, IF	

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MISCELLANEOUS
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3	1-692-143-11	SWITCH, RUBBER KEY
⚠12	1-559-912-11	CORD, POWER (AUS)
⚠13	1-555-795-00	CORD, POWER (AEP, IT, E)
⚠14	1-696-008-31	CORD, POWER (US, Canadian)
SP1	1-503-082-00	SPEAKER

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ACCESSORIES & PACKING MATERIALS
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	1-501-499-11	COUPLER, ANTENNA (5AEZ)
*	3-378-677-01	INDIVIDUAL CARTON (US)
*	3-378-683-01	INDIVIDUAL CARTON (Canadian)
*	3-378-684-01	INDIVIDUAL CARTON (5AEZ, IT, E, AUS)
*	3-378-684-11	INDIVIDUAL CARTON (AEZ)
	3-755-140-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, GERMAN) (Canadian, AEP, E, AUS)
	3-755-140-21	MANUAL, INSTRUCTION (ENGLISH) (US)
	3-755-140-41	MANUAL, INSTRUCTION (SPANISH, DUTCH, ITALIAN) (AEP, IT)

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